The Builder.

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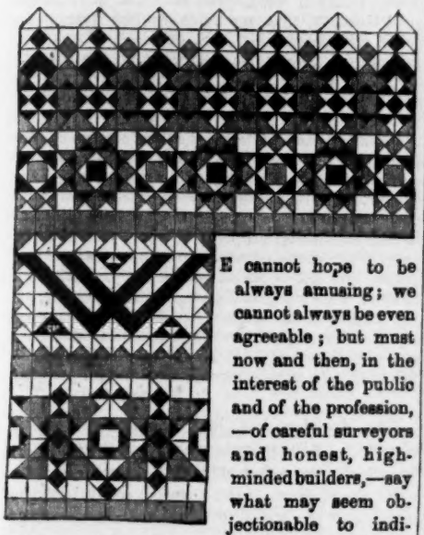
On Several Subjects: Some of them Serious.



E cannot hope to be always amusing; we cannot always be even agreeable; but must now and then, in the interest of the public and of the profession, —of careful surveyors and honest, high-minded builders,—say what may seem objectionable to individuals. Several occurrences have recently led to unpleasant discussions, have brought us many letters, and need further ventilation. Foremost amongst these is what we may call, for a double reason, a "tender" subject. Correspondents urge that a wrong impression has been produced by the paragraph entitled "Erroneous Estimating," which appeared in the *Builder* of the 5th of November inst., and which was subsequently transferred to the columns of many of the daily papers. It has been taken for granted, they complain, that the difference in the tenders for the work specified to be done at Nos. 3 and 5, Buckingham Palace-road (one, the highest, being 2,188*l.*; and the other, the lowest, 800*l.*) was *entirely* owing to the builders themselves, and demur to the remark that as all the builders tendered on the same bill of quantities, this "discreditable difference" must have arisen merely through the prices: they think undeserved obloquy has been attached to the builders in this particular case; and suspect that some one else is to blame besides the builders. One correspondent, signing himself "Audi Alteram Partem," and in whose good faith and accuracy we have reliance, says:—

"I happen to be the surveyor employed by one of the parties tendering for the work to make his estimate for him, and, on looking over the papers put into my hands, I found this paragraph at the end of the stipulations:—

'The bills of quantities are taken out with great care, and are believed to be correct; but of this the contractor must satisfy himself, as neither the proprietors nor the architect will hold themselves responsible for the quantities.'

Acting upon this express instruction to the contractors, I took sundry measurements of the proposed work; but, unfortunately, the bills of quantities had come into my hands so late that I had not time to test all the items, and was obliged to content myself with trying a few of them. The results much surprised me, as you may gather from the following instances:—

1. In the carpenter's bill of quantities, as issued to the contractors, there are the following items:—

Fo. 1.	30 squares.	Firring out to joist to floors.
,,	30 squares.	Firring out for ceilings to receive the plasterer's lath.
Fo. 2.	36 squares.	Firring out the old joist above and below, to secure level floors and ceilings.

or 96 squares of firring out altogether; while I cannot make out so many as 40 squares. The basement and the ground floors were to be entirely new, both joists and boards; so no firring out was necessary for either the basement or the shop floor or for the basement ceiling. There, remained, therefore, the shop ceiling, the first-floor ceiling, the bedroom ceiling and the upper bedroom ceiling to be firred out; also the joists of the first floor, the bedroom floor, and the upper bedroom floor,—four ceilings and three floors in all. The measurement of these floors and ceilings is given incidentally in the bills of quantities themselves, the new ground floor being stated to be '5 squares 12 ft. super., 1½ in. tongued and grooved shop floor.' There ought to have been, therefore, if this measurement be correct, 20 squares 48 ft. of firring out to ceilings, and 15 squares 36 ft. to floors, or 35 squares 84 ft. in the whole, instead of 96 squares, as put in the bill of quantities. How this excess of more than 60 squares, worth from 7*s.* to 8*s.* per square, was obtained I am utterly at a loss to conceive. Some great blunder must surely have unfortunately been made, either in the squaring the dimensions, or in the manuscript, or in the lithography. It is only right to put such a construction upon it until there has been an opportunity for explanation.

2. The second instance (not so astounding as the former), which I shall give is this:—In Folio 1 of the carpenter's bill of quantities, there is an item of '24½ squares of 1½ yellow batten flooring.' Now, I have already mentioned that the shop or ground floor was to be '1½ in. tongued and grooved,' and that it measured 5 squares 12 ft., which measurement, I believe, to be sufficiently correct. There would remain, therefore, the basement floor, and the *first*, *second*, and *third* floors, or four floors in all, to have new boards. If the area of one floor be 5 squares 12 ft., how can four such floors measure 24½ squares? Surely four times 5 squares 12 ft. must be 20 squares 48 ft., not 24½ squares as put in the bill of quantities. There might possibly be a few feet more in the upper story, if the walls were half a brick thinner than in the stories underneath, but this would make but a very trifling difference.

3. Folio 2 in plasterer's work shows:—'50 yds. plain cementing to chimneys.' My assistant went on the roof, and could not by any means make 25 yards of this, not even if he reckoned the inside of the parapets as well.

I could mention other items, but your space I fear would be too much occupied. Enough was seen by me to convince me of the propriety of the instruction to the builders, to satisfy themselves as to the quantities, and enough I think has been brought forward by me to show that estimates would be likely to vary in such a case as this. One contractor would go through the whole of the work himself, and form his own conclusions as to quantities; another would go partially into it, as I was compelled to do for want of sufficient time; and others would take the quantities just as they were furnished, and estimate accordingly. My advice to my client under the circumstances was this, to put his estimate in at a prime-cost price, believing there would be a sufficient excess found in the quantities to yield him a profit. To go lower than this I dared not advise him, for I was not sure whether the quantities were to form part of the contract, in which case he might probably be compelled to make an abatement if the quantities were found to be considerab'y less than stated.

I have written this, sir, to mitigate in some degree the effect of the expressions of surprise and censure which have in this case fallen so heavily upon the heads of the unfortunate builders who could so widely differ as do the respective sums of 2,188*l.* and 800*l.* Did this preposterous difference arise, in my opinion, *from differences in price alone*, I should say, let the builders by all means suffer the obloquy which would deservedly attach to so 'discreditable a difference;' but any one may readily see that, if the builders went into the quantities themselves, they did not, in fact, all 'tender on the same bill of quantities,' and may suspect that the differences might probable arise from other circumstances than mere difference of prices.

In conclusion, will you permit me to suggest that more time should be given to contractors to make their estimates than has been customary of late, and that greater facilities should be afforded them to go into the quantities themselves if they desire to do so? The short time given in many cases is indeed preposterous, and is utterly inconsistent with making trustworthy estimates. Another point which I wish to submit to you, as a man of great experience in your profession, is, whether you deem it expedient for architects themselves to take out the quantities of the work which is to be executed under their direction. I have always found that much more satisfaction has been given and confidence expressed when well-known quantity surveyors have been employed for that purpose. I have endeavoured to look most carefully into this case, and I sincerely trust that I have not in any way misunderstood it, and so have unintentionally misrepresented it. If it can be shown that I have done so, I shall be happy to make any suitable apology or retractation: until then I must believe that the builders have had scant justice done to them in this matter; and that, as the accusation against them has been so public and wide-spread, it is only right that any fair defence which can be offered on their behalf should be made equally so."

Most certainly; and we willingly give insertion to these observations. The architect, Mr. Dale, we have no doubt, is quite able, and will be glad of the opportunity to explain the apparent errors.

We printed last week a list of tenders for erecting the tower and spire of Wraysbury Church, under Mr. R. Brandon, architect, which is strangely similar in its terrible diversity to that we have just now mentioned, the highest being 2,323*l.*, the lowest 950*l.*, and both were, as we believe, from very respectable persons. Surely it is the duty of all concerned in these and like cases to endeavour to arrive at the right explanation of such an injurious discrepancy. We have obtained from one of the builders, not amongst the lowest, who tendered for Wraysbury Church tower the following rough abstract of the quantities:—

The works consist of a new tower and spire, and making good to present building.

Cost of material on the site as follows:—Rubble rag per ton, 10*s.*; Hassock ditto, 8*s.*; Bath stone, 1*s.* 6*d.* to 1*s.* 7*d.* per foot cube; bricks, 34*s.* per 1,000.

Quantities as supplied by a London surveyor:—

219 yds. dig, wheel, and cart.
88 yds. concrete.
2 rods of brickwork in cement in underpinning.
389 yds. cube of rag walling.
2,592 ft. facing to ditto.
4,632 ft. cube of Bath stone.
157 ft. cube of Portland and Mansfield
169 ft. super. of 2½-in. rubbed York paving.

The labour on masonry (including waller and bricklayer) amounts to the sum of...	£121	0	0
Material, &c., joiner and carpenter	61	0	0
Plasterer, smith, glazier, and decorator ...	92	0	0
Surveyor's charges.....	51	0	0
Extra scaffolding to spire; inclosing, covering up old building, &c.	150	0	0

We should like to know if all the builders were supplied with quantities from the same surveyor, especially the lowest, and if the above list be similar to their own.

We impute no improper motives in the cases we have commented on; we have not the slightest ground for doing so. We simply seek explanation.

That dishonesty, however, has been elsewhere exhibited we are assured. With reference to some work done last year, for example, a builder informs us, that having gained a contract, the architect who had taken out the quantities informed him, under promise of secrecy, that the bills, on which he had made his estimate included 25 rods of brickwork in excess, and requested a participation in the advantage! The writer refuses us the name of the person in question, or we would print it, and take the chance of an action for libel. Moreover, if the delinquent proved to be a member of the Institute (which we do not for a moment believe), we would immediately take steps to obtain his expulsion from that body, regardless of personal consequences.

We have received two additional letters concerning the tenders for the Kensington Workhouse Infirmary. We can find space for only a quotation from one of them. The writer says:—"The surveyors appointed by the guardians, talk in their letter to you (p. 910), about the closeness of the competition for the works. You may not think this so remarkable when I tell you that more than one of the persons who tendered, determined at the last moment not to

price out their quantities, but obtained a sum from one of the other firms, and sent in an offer at something over that. Touching the cost to the parish of taking out these quantities, are you aware that the sums set down in the bills for specific works (for example, allow 986*l.* 10*s.* for service-pipes to cisterns, for water-closets, &c.) amount to 4,400*l.*? So that if only 2 per cent. be charged altogether, and not 3, as 'Ratepayer' asserts, the surveyors get 84*l.* for merely writing down these items."

We cannot just now pursue this part of our subject further.

"Audi Alteram Partem" asks us at the close of the letter we have printed above, whether we "deem it right or expedient for architects themselves to take out the quantities of the work which is to be executed under their direction"? We unhesitatingly answer we do *not* consider it expedient they should do so.

The case of Jones *v.* St. John's College, Oxford, the report of which will be found in our present number, is another warning to builders (if they will but take it) against the reckless folly of signing contracts without having their conditions properly looked into. The counsel for the College argued that "supposing an order for extensive alterations had been given a day or two before the expiration of the time, so that it was physically impossible the work could be completed, the penalties for non-completion could have still been enforced." The judges seem substantially to have agreed in this view of the law, saying, "If persons would bind themselves to absurdities or impossibilities, they must take the consequences. These contracts were often very one-sided, and the builders frequently put themselves absolutely in the power of the employer and his architect; but if they will continue to sign these contracts, such gross folly could not affect the judgment of a Court of Law." The difficulty which builders have found in dealing with such contracts before signature is that not one solicitor in a hundred understands the full bearing of the conditions of building contracts; it requires a very precise technical knowledge and a large experience to see their meaning and extent. Our readers know that the Committee of the London Builders' Society has had under consideration for a long time a set of conditions of contract founded on the agreement with the Council of the Institute of British Architects. The wide publication of these, when thoroughly revised and settled, will assist in bringing about a better state of things.

We print the following, dated from Primrose-hill, in order that we may add a comment:—

"I think it may possibly produce some good effect if I report to you the fact,—discreditable to the district surveyor,—that when my next-door neighbour's chimney was on fire, from deficient sweeping, the fire burned through into this house, destroying the mortar of the party-wall, filling my house with smoke, and compelling me to apply to the fire insurance office, whose workmen are now employed in stripping the wall within my house, and stopping up the holes created by the fire. This fire was no serious matter in itself; it was confined to the chimney, yet so badly constructed are the houses that this work is required.

Not being an architect, nor intimately acquainted with the building trade, this occurrence has induced me to look, as a matter of curiosity, at the new houses in course of erection near me. It is really scandalous that such work should be allowed. If our Building Acts are to secure life and limb, and to prevent the spread of fire, it is truly disgraceful that builders, and architects also, should be allowed to build such houses as I see around me."

We know nothing of the particular case in question, but we undertake to say that many existing houses might be burnt down through the want of the proper parging of the flues, without it being at all "discreditable to the district surveyor." At his visit he urges on the foreman, we will say, the necessity of properly rendering the inside of the flues, and is promised attention. Do all that he can, however, look and inquire as he may as the work goes on, he is in the hands of the bricklayers, to a great extent. It is impossible for him to prevent it from being omitted in parts, if the men are so disposed. Should he discover that a portion is not done, he is told that a boy shall be sent up afterwards. He is told that a boy has been sent up, and that it is all right. In fact, when dealing with scamps, let the district surveyor do what he can, flues may be insufficiently parged. Nor can he prevent bad brickwork generally under similar circumstances. It must be very bad indeed before a magistrate would condemn it, being aware that condemnation might mean the ruin of the speculator, and so thousands of houses pass which the district surveyor knows perfectly well are very badly built, but not badly enough to justify him in going to the police court.

In the case of foundations, too, the Act says the walls are to be built "on solid ground or concrete." The district surveyor may know that the site is unstable, but a layer of concrete has been put into the trenches, sufficient to meet the requirements of the Act, though not to prevent settlements and cracks hereafter, and he also knows it would be useless therefore to take the case before a magistrate. In a word, our correspondent may be right with reference to his particular case, but he may rest assured that a vast deal of bad building is done under the Metropolitan Building Act, without it being "discreditable to the district surveyor."

And now from Builders to Architects' Drawings. When we reported the application for a new trial in the case Ebdy *v.* M'Gowan,* we gave the key-note of the concluding passage. At the trial, Baron Bramwell repeated, with additions, the unsound observations we reported, and the rule was made absolute entitling the Rev. Mr. M'Gowan not to pay Mr. Ebdy for what the latter had done towards the erection of a parsonage-house for him, until Mr. Ebdy had delivered up to him the plans. Baron Bramwell, when the rule was asked for, said,—"If an architect be employed to make plans of a building, and be paid, it seems preposterous, almost childish, to say that he shall retain them." Again,—"The usage set up is impossible, and perfectly suicidal. It only need be stated to show it does not exist. It no sooner comes into existence than it cuts its own throat by its absurdity;" and other nonsense of the kind. It is quite unnecessary to point out to our readers the unsoundness of the Judge's *dictum*. It has been repeated *ad nauseam*, that an architect, except in very special cases, is not employed to make plans, but to produce a building, and that the plans are an accident in the case, the architect's mode of communicating his orders to the workmen, and may or may not be used; may be chalk-lines on a board, or an elaborate water-colour picture. Even in the case that the design is not carried out, the real position is clearly understandable.

If an employer request an architect to prepare drawings for a building for him to be sent abroad, let us say, or to be put into other hands to carry into execution, the architect will assent or refuse, as he please; and if he assent, and hand over the drawings, make such charge as he may have arranged for. But if he be appointed to act as architect for a certain building, and the matter go no further than the preparation of the drawings, being stopped by the act of the employer, there is nothing absurd, nothing preposterous, nothing suicidal in the statement of the usage that the employer should pay, for the time and skill expended, a certain proportion of what would have been the full charge if the design had been carried out; and no injustice whatever in the fact that he has nothing to show for his money; provided, of course, that the stoppage took place through no evil act of the architect. To the question put by one of the Judges at the trial,—"Supposing the architect dies, can his executors keep the plans and yet demand payment for them?" we should say, certainly not. Further, there is the question of courtesy, and willingness to act liberally. Mr. Sydney Smirke,—whose evidence, which materially helped to lead to the present decision, seems to have been misquoted,—writes to us as follows:—

"It would appear by the report of Sittings *in Banco*, Court of Exchequer, Nov. 16 (*in re* Ebdy *v.* M'Gowan), that my evidence has been probably misapprehended, or, at least, obscurely expressed. I beg to subjoin what, to the best of my belief, was exactly the purport of my evidence, and I will add that, after the fullest reconsideration, I retain the opinion expressed.

I stated in my evidence that the custom of the profession has long been, and is, that the architect retains the drawings of a building after its execution, unless under special circumstances or contract; and I gave reasons why such practice is convenient and proper. In reply to the question, What is the custom when the drawings are made, but *not executed* under my superintendence? I stated that I gave up the drawings to my client, if he wished to have them, and charged a commission of 3 per cent. on estimated cost; adding that I did so because I thought it fair that *both* parties should have a *quid pro quo*.

SYDNEY SMIRKE."

The decision has had one serious result already. At the private meeting of the Institute to which we referred recently, held to consider the position of the question concerning the demand of the Board of Works for the drawings for the Houses of Parliament, it was

"*Resolved*—That this meeting adheres to the opinion entertained by a large proportion of the profession, and supported by a mass of evidence as to the practice in all parts of the kingdom on the question raised between Mr. E. M. Barry and the Office of Works, which opinion was embodied in a series of resolutions passed at the special general meeting held on the 9th of May last, maintaining the architect's right of ownership to his drawings, and promising Mr. Barry the support of the Institute.

But, considering that the law officers of the Crown have, in a case submitted to them by the First Commissioner, expressed a contrary view as to the legal aspect of the question, and that the point, if disputed further, would have to be settled at law, the meeting feels that it cannot advise Mr. E. M. Barry personally to contest his right in a hostile manner.

Feeling, therefore, that it would be undesirable for any individual architect to enter into a legal contest with the Government, and observing from the official correspondence now produced, that the First Commissioner is willing that a joint case should be submitted to the law officers of the Crown, and that he undertakes to abide by such decision if Mr. E. M. Barry will do so, this meeting would recommend Mr. Barry to agree to the principle of a reference as disposing of his case."

It was further

"*Resolved*—That, inasmuch as the case of Mr. E. M. Barry now under consideration has exceptional features, this meeting is not prepared to accept the decision concerning it which may be arrived at (by the reference above mentioned) as a rule for general guidance; but would prefer that, at the earliest possible opportunity, a legal decision on a case involving the question of an architect's right of ownership to his drawings should be obtained in one of the superior courts, where evidence as to custom can be produced."

Acting on the advice given, the difference had been brought to the point of arranging an agreement to refer the claim to a retired Judge, when the judgment in Ebdy *v.* McGowan was given. In the face of this judgment, acting under high legal advice, Mr. Barry has withdrawn from the contest, and has told Mr. Ayrton he might have the drawings when he liked. Lawyers say the decision referred to will now be looked on as settling the law, and that no referee would be at liberty to disregard it. We cannot consent, however, that the general question should be considered settled, and trust that before long means will be taken to obtain a legal decision upon a less exceptional case than either of the two we are speaking of.

Leicester-square.—The Metropolitan Board of Works have given notice of their intention of applying in the next session of Parliament for a Bill to enable them to take the garden or inclosure in Leicester-square, to extinguish all existing rights in the same, and to empower them to appropriate and set apart the same for ever as a place of recreation for the public.

* See p. 911, *ante*.

OPENING OF THE NEW PUBLIC BATHS, BRIGHTON.

THE formal opening of baths, the establishment of which has been the subject of much controversy and discussion during several years past, has now taken place.

They are situated at the bottom of North-road, forming part of the old barrack property now in the hands of the Corporation, and are accessible by an iron gateway, through an archway in the buildings, the land for which was not long ago purchased from the town council on lease, opposite Cheltenham-place. They have been constructed by Mr. Blackmore, and Messrs. Reed, engineers, the contractors; the brass-fittings, locks, and other ironmongery having been supplied by Mr. H. Woollett. The main building of the baths is not new, the northern portion of the old Infantry Barracks having been adapted to the purpose; the whole of the interior having been removed and re-constructed for the present purpose. There are two separate entrances to the baths, dividing the women's from the men's, which have no connexion, except at the money-taker's office, which is situated between the two entrance-doors. The first, or northern entrance, leads to the women's baths; on the ground-floor, first and second class, of the former of which there are two, and of the lattter three, with waiting-room outside, the floor of which is covered with kamptulicon. The walls are faced with Minton's tiles, and the wood-work of the baths is of pitch-pine, stained and varnished. There is no difference in the fitting up of the baths themselves, except that the second class are a trifle plainer, although possessing equal comfort and convenience in other respects. The southern entrance leads to the men's baths, which are on the first floor, approached by a flight of oak stairs, the first and second-class baths being separated by a gallery at the top of the staircase. The baths are similarly fitted to those of the women, the difference between the first and second class being in appearance very trifling. There are six first-class and eight second-class on the men's side, each bath-room being about 6 ft. square, and containing a bath 5 ft. in length, made of iron in one piece, and covered with a white enamel which gives them the appearance of porcelain, and possessing the requisite of perfect cleanliness without unnecessary trouble. They are all fitted with apparatus for the supply of cold or hot water in any proportion required, the supply being regulated from the outside by the bath attendant, by means of valves with indicating plates, so as to prevent the possibility of a mistake. The waste pipes from the whole are connected with the common sewer. In each class of baths is fitted a shower-bath, for use as may be required. Each bath-room floor is covered with cement, on which is a carpet and footboard; and all other conveniences have been provided for the use of the bathers. In the rear of the building, on the basement, is the steam boiler, by which the hot water is prepared; and on the ground floor is a commodious washhouse with copper and apparatus for washing and drying the towels.

DUDLEY GALLERY EXHIBITION.

THE committee who manage the exhibition, now held twice in the year, at Egyptian Hall, want a name irrespective of that of the room in which the pictures are shown, and which is not exclusively reserved for them. They should settle this at once. The present collection is scarcely so remarkable as some that have preceded it, but contains a number of good and agreeable pictures worthy of longer notice than the pressure on our space enables us to give. Three pictures by Mr. G. F. Watts, attract attention. The first, which is a design for a larger one of the same subject, he names "Love and Death." A draped figure is pushing open with resistless hand a chamber-door from which Love is coming out. Death, by her vastness, overshadows Love, and seems to render all human interposition useless. It is hazy, but suggestive. His other figure design is a fine monochrome of Francesca and Paolo, as Dante saw them in the Inferno. The pale head that reposes on the bosom of the shrouded lover is sadly sweet. Love defies torment.

Mr. A. B. Donaldson's illustration of the old Venetian legend of the "Return of St. Mark, St. George, and St. Nicholas, the Patron Saints, to Venice" (78), is a meritorious and striking work entitled to careful notice. Miss Ellen Freer gives a new reading of "In Memoriam." A charming young lady, wandering in the woods flower-gathering, comes suddenly upon a tree upon which she perceives certain well-known words cut. She tenderly clasps the tree, and presses her lips to the initials. The glints of light upon the dress are cleverly managed. Our "Country Garden," by Mr. J. C. Lewis, is a blaze of children and flowers. Mr. Elihu Vedder's "Dead Abel" (34) is an impressive picture. The dead body of Abel, lying at the foot of his offering of fruit and flowers, is well posed and modelled, the result of intelligent study. Mr. H. Wallis exhibits a fine picture, "His Highness and his Excellency the Ambassador of the Florentine Republic." "The Art Critic," by Mr. Claude Calthrop, portrays capitally a jester passing his opinions upon a picture-gallery, so as to move the mirth of a fat monk. Mr. Calthrop is making good progress in his art. Mr. Poynter's "Little Girl" (204) and Miss Osborn's "Venetian Water-carrier" (209) are amongst the very good things in the collection.

YOUR NEIGHBOUR'S MUSIC.

A CORRESPONDENT from Whalley Range, Manchester, sends us a lamentable account of the sufferings of some members of his family more than usually nervous, through the pianoforte playing and the singing of his neighbours, and implores us to suggest a remedy. He says, "*Although* the division walls are 9 in., that is, a brick length, and of course plaster, in addition, in thickness, sound can plainly be heard in the room we mostly occupy, the room over, and also in the cellar under. Each note on the piano can be heard quite plainly." Sawdust has been put in at the floor next the wall, the recesses on each side the chimney-breast have been battened and papered, and other expedients tried, but all is of no use. Nor, we are sorry to say, can we suggest anything in reason that would prevent the annoyance. It would, of course, be lessened if his neighbours could be persuaded to remove their pianofortes from the party wall to the other side in each case (he lives in a block of three), and this is what our correspondent should endeavour to bring about.

In stating this gentleman's grievance we express that of thousands, and yet builders in erecting ordinary houses to sell make no endeavour to prevent the nuisance: and little wonder; for if any of them did, they would probably get no more for their houses, or be undersold by less careful competitors. The public may blame themselves.

BUILDERS' CONTRACTS.

JONES *v.* ST. JOHN'S COLLEGE, OXFORD.

THIS was an action in the Court of Queen's Bench, before Mr. Justice Mellor, Mr. Justice Lush, and Mr. Justice Hannen, by a builder, to recover a balance of 990*l.* under a building contract with the College. They set up (except as to 120*l.* paid into court) a cross claim of 870*l.* for penalties, at the rate of 3*l.* a day, under a clause in the contract providing for delay in the completion of the works. The builder to this replied that the delay was occasioned by alterations ordered by the College, which rendered it impossible, as they well knew, to complete the contract and the additional works within the specified time, unless an extension of time were allowed. There was the usual clause in the contract for referring disputes as to time, or quantity, or quality to the architect, who, however, had certified the amount due without any deduction for penalties, which did not appear to have been claimed; and there was a provision for extension of time by him, but there had been no such extension.

Mr. Manisty, Q.C., and Mr. J. O. Griffits were for the plaintiff; and Mr. Kemplay was for the College.

The plaintiff greatly relied upon the recent case of "Westwood *v.* The Secretary of State for India" (cited from 11, *Weekly Reporter*), decided by this Court (Mr. Justice Mellor, Mr. Justice Wightman, and Mr. Justice Crompton) in 1863, and where the Court as to set-off for penalties held that the contractor was not liable, the Indian Government having by their own acts and orders knowingly rendered it impossible for the contractor to do the work within the time. On the other side, the express terms of the contract were relied on, and it was urged that, however hard and unjust it might be, the builder had bound himself by it so strictly that he could not resist the claim for penalties, and it was maintained that the case cited was not precisely applicable, though in the course of the discussion more than one of the learned Judges seemed to think that it was so, but that it was wrongly decided; and in the course of the argument, the counsel for the College being asked by Mr. Justice Mellor whether, supposing they had given an order for extensive alterations a day or two before the expiration of the time, so that it was physically impossible the work could be completed, and they had refused any extension of time, they could have enforced the penalties, he admitted that he was bound to answer, according to this view, that they could not.

In reply, on the part of the plaintiff, it was urged that, as this contention was simply monstrous, it was sufficient to show that the defence set up by the College was as contrary to law as it was to common sense and justice; and that the case of "Westwood *v.* The Secretary of State," was rightly decided, and embodied the sound and just principle of law, based on the acknowledged maxim of law that no one could take advantage of his own wrong or enforce a penalty for a default caused by his own act and conduct.

The Court, at the conclusion of the argument, retired to consider their judgment, and, on their return, proceeded to give judgment in favour of the defendants, the College. The plaintiff, the builder, they said, had expressly contracted to do not only the original, but the additional works within the specified period, unless there was an extension of time, which had not been allowed. It was urged, they said, that this was hard on the contractor, that he should be liable to penalties for works the nature of which he could not have known at the time he entered into the contract. If persons would bind themselves to absurdities or impossibilities, they must take the consequences. No doubt, these contracts were often very one-sided, and one of the parties put himself absolutely in the power of the other. This was in reliance on the reasonableness and fairness on the other side, but that could not affect the judgment of a court of law. The terms of the contract were clear, though its operation might be hard; and it did not appear that, in point of fact, in this case, the extra works were out of the scope of the contract, or had been ordered at such a time as to make their completion impossible. The case cited was distinguishable on the pleadings, as the point in question did not appear precisely to have arisen, though the Court had expressed the opinion mentioned. The judgment of the Court, therefore, must be for the defendants.

BUILDERS' BENEVOLENT INSTITUTION: ELECTION OF PENSIONERS.

THE thirty-fourth election of pensioners in connexion with this charity took place on Thursday last, 24th inst., at Willis's Rooms, King-street, St. James's, Mr. Alfred J. Manafield, president, in the chair. As we stated in our recent report of the anniversary dinner, there were then forty-four pensioners in receipt of annuities from the Institution, twenty-two men and twenty-two women; the men receiving 24*l.*, and the women 20*l.* per annum each. To this number two pensioners were added by yesterday's election, one male and one female, there being five male and seven female candidates. The male candidates were: William Peters, Benjamin Johnson, Francis Sandon, William Gale, and Mark Mintry. The female candidates were: Harriet Proctor, Mary A. Morgan, Frances Seare, Mary St. George, Jane Brothill, Elizabeth Trevethan, and Alice Hugoe. The Chairman, after expressing his regret that the funds of the Institution at the present time would not permit of the election of more than two out of the twelve candidates, declared the poll to be opened, and it remained open from twelve o'clock till three. At the close of the poll the scrutineers, Messrs. Stirling and Matthew Hall, announced that the successful candidates were Benjamin Johnson and Mary Ann Morgan. It was also stated that the unusually large number of 1,200 votes was left unpolled, the votes recorded being 800 less than at the last election. A vote of thanks to the scrutineers (proposed by Mr. Thomas Smith, and seconded by Mr. John Thorn), and a similar compliment to the Chairman (proposed by Mr. George Plucknett, Treasurer, and seconded by Mr. Joseph Bird), having been unanimously passed, the proceedings terminated.

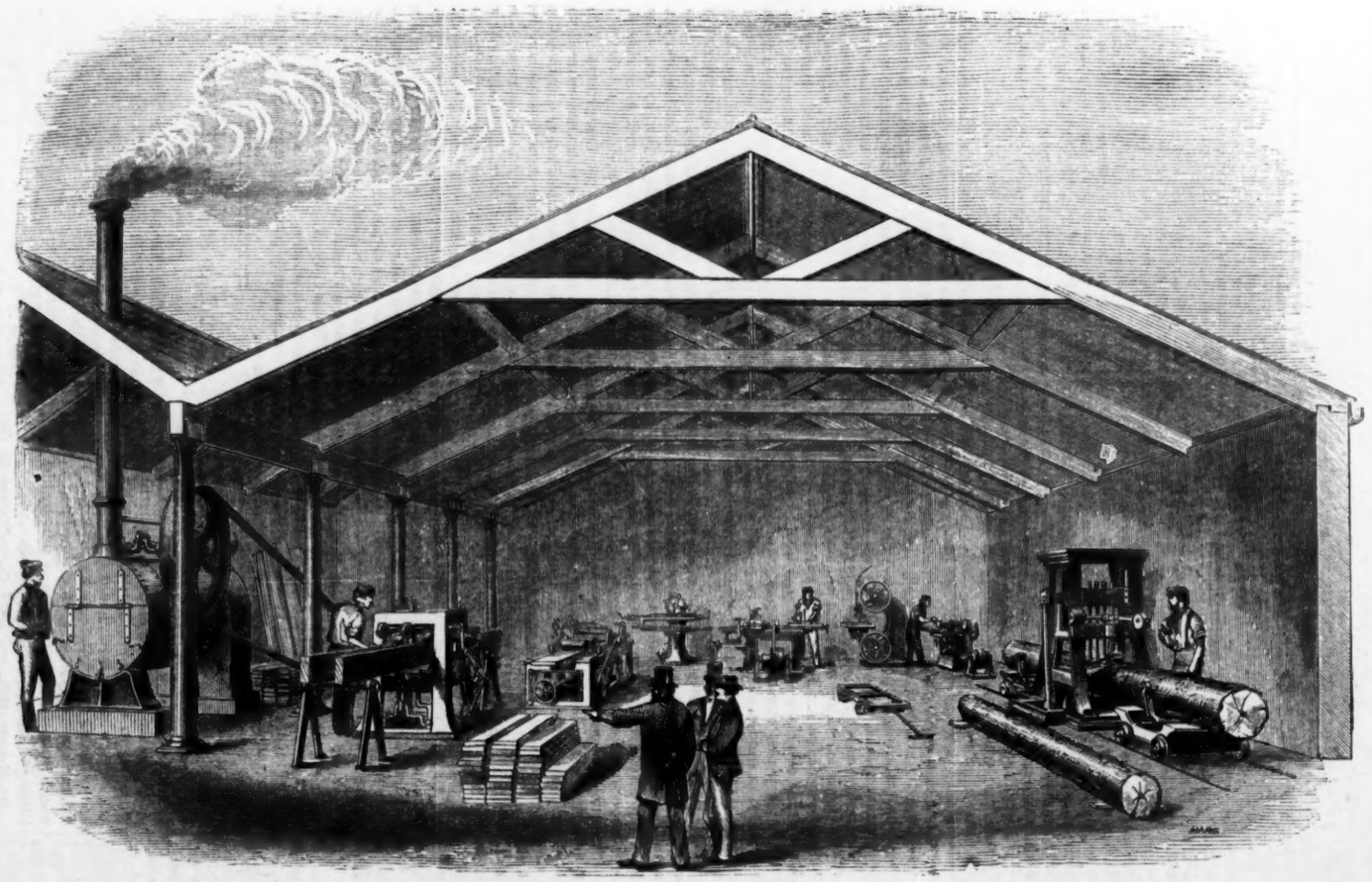
A HOUSE FOR THE LEARNED SOCIETIES.

Thames Embankment Site.—Dr. Guy, in his lecture at the Statistical Society, on the 15th, advocated the claims of the four principal institutions connected with social science,—namely, the Statistical Society, the Institute of Actuaries, the Juridical Society, and the Social Science Association,—to the grant by Government of a site upon the Thames Embankment, a plan for which has been prepared by Mr. Bellamy, and stated that if such a site can be procured a building fund will not fail to be contributed by the members of those four societies.

Victoria-street Site.—A meeting was held on the 2nd of November, at the Rooms of the Statistical Society, at which a scheme, illustrated by drawings by Mr. E. W. C. F. Schmidt, architect, together with a report, was laid before the delegates of the Societies present. This scheme proposes to utilise No. 4, Westminster-chambers, and the vacant ground at the back, to meet the requirements of the societies.

There is evidently a movement in the right direction, but it seems to us to want a good head.

A TRIAL-SHOP FOR MACHINERY IN MOTION.



This building has been erected at the works of Messrs. A. Ransome & Co., King's-road, Chelsea, for the twofold purpose of thoroughly testing all new machines as they are from time to time brought out, before sending them away, and also for a show-room, in which intending purchasers can at all times see a selection of the newest and most improved wood-working machines in full operation, and so be enabled to judge for themselves of the merits of the machines before ordering.

From the fact that new machines are being constantly brought out at these works, it results that the selection in the trial-shop is constantly changing; and although some of those which are in general demand are always to be seen working here, yet the chief feature of interest is the exhibition of the various new mechanical appliances and tools, which are tested and perfected in this building before they are brought before the public.

The machines shown in the engraving are of special interest to builders, as they comprise almost everything that is required for preparing joiners' work, from the saw-frame to the lighter machines for tenoning and mortising; and, as they mostly possess some novel features, a brief notice of them may not be deemed uninteresting.

In the front, on the right hand, is a portable combined timber and deal frame for sawing either a log or two deals, as may be desired. The chief novelty in this machine appears to be its great compactness, and the peculiar arrangement of the working parts, whereby the necessity for deep excavations, and the costly foundations which have hitherto been required for machines of this class are dispensed with, and the frame stands upon its own foundation-plate, which is fixed at the floor level upon two stones set in a few courses of brick-work, the only parts of the machine which go below the floor being a portion of the fly-wheel, and the lower part of the swing frame. All the working parts are made of wrought iron, and are as light as possible consistent with sufficient strength. Although the saws make as many as 200 strokes in a minute, there is scarcely any perceptible vibration in the machine.

Opposite to this machine is a small double deal frame, which at first sight appears too small to be capable of sawing anything but battens; but although it stands entirely above the floor, and is only 4 ft. 6 in. high over all, it will saw two deals or planks at a time, up to 11 in. by 3 in., with great speed and precision. The main framing and foundation-plate are cast all in one piece, and the entire machine is so strongly constructed that the saws can be driven at 350 strokes a minute without undue vibration. The deals are fed through the frame by a new arrangement of feed-rollers, which has recently been patented by Messrs. A. Ransome & Co., the improvement consisting in the introduction of three feed-rollers, which are coated with a hard description of india-rubber, which gives a great grip on the surface of the deal and renders any slip impossible. Moreover, being smooth and to a certain extent yielding, the rollers do not mark the deal.

Beyond the deal frame is a new patent planing and moulding machine, which takes in boards up to 12 in. wide and 4 in. thick, and works on all four sides at once. The weak point with machines combining the two operations of planing and moulding has hitherto been that the spindles of the cutter-blocks, if sufficiently strong to work heavy mouldings, are too large to admit of being driven at the very high speed which is necessary to secure perfect work. In the machine under notice, this difficulty is overcome by the introduction of two additional cutter-blocks, one of which acts upon the upper and the other upon the under side of the board or moulding. The spindles of these extra cutter-blocks are made of a special quality of cast steel, which is very hard on its surface, but has a soft, tough core or centre: the result is, that great strength is obtained with a small diameter of bearing, and these spindles can be driven nearly double as fast as they could be if made of iron. These extra blocks are armed with light cutters, which finish the moulding after it has been roughed out by the first top and bottom cutters, and being driven at a very high speed, and having nothing to do but skim the surface of the wood, they turn out the wood with a very fine finish, and at a speed unattainable with any machine not possessing this improvement. As the finishing cutters work only in the clean wood which is perfectly free from grit, they will run a long time without getting dull. All the spindles of this machine run in self-lubricating bearings, of considerable length, which enables them to work at high speeds without heating.

On the opposite side of the shop is a special machine for running small mouldings, not exceeding 3 in. wide by 1½ in. thick, which it turns out worked on all four sides with a good finish, at the rate of 40 ft. a minute. As in the machine last described, the spindles are all made of mild centred cast steel, and run in self-lubricating bearings; and, being small in diameter, they admit of being driven at 6,000 revolutions a minute, at which speed, we are told, they run perfectly cool.

In the middle of the shop is one of Messrs. Ransome's patent general joiners, which are now so well known as not to require any notice here, the only new feature in it being an additional arrangement for cutting circular mouldings and for chamfering and shaping straight or irregular-shaped pieces. The band-saw shown at the end of the shop is fitted with an effective arrangement for packing the saw immediately above and below the cut. This is the invention of Mr. Richards, of Philadelphia, and enables the saw to stand a considerable amount of forcing without being unduly strained or buckled. An improved saw-sharpening machine is always kept at work for sharpening both the frame and circular saws used in the various machines.

The whole of the machinery is driven by a new description of portable engine recently brought out by Messrs. Ransomes, Sims, & Head, of Ipswich, with the special object of economising fuel. The boiler, which is unusually large for

its [nominal power of 10-horse, is made sufficiently strong to work safely at a pressure of 100 lb. to the square inch, the ordinary working pressure being 80 lb., at which the engine will give out double its nominal power. The fire-box is of large size for burning the chips and shavings made by the machines, instead of coal, and the feed water is heated by the exhaust steam to nearly boiling point before it enters the boiler. The cylinder is provided with a steam-jacket, which is constantly filled with hot steam, and thus prevents any condensation of the steam in the cylinder; and the engine is fitted with an improved variable expansion-gear, by which the amount of steam used can be regulated according to the number of machines at work.

The machines are all substantially fixed, and the shafting runs in a tunnel under the floor; so that the belts are all out of the way. It seems to us that any builder contemplating the erection of machinery could not fail of getting some useful hints from a visit to this place.

THE STUDY OF CHURCH ARCHITECTURE.*

Although this is the second time only that I have attended the meetings of this Association, I cannot say that I have the feeling of being in the presence of strangers. For, in the first place, I see before me the familiar countenances of several of your members, in whose company I spent a very pleasant week at the end of August, amongst the Lincolnshire churches; and, in the second place, I cannot help thinking that you will be disposed to accept me on the footing on which I desire to stand with respect to this Association, namely, as a friend, who having long ago withdrawn from the practice of architecture as a profession, and having therefore no further personal object to serve in this respect, desires to aid the junior members of the profession in the pursuit of a study to which he has devoted a considerable portion of his own life, and on a tolerably complete knowledge of which depends in a great measure their future excellence as professional men; I mean the study of the History of Church Architecture. And here let me guard against the possibility of being misunderstood. When I speak of the study of the History of Church Architecture, I mean the serious study of the progress of a great Art—the art of Building,—during the Middle Ages; and I do not mean that dilettante study of Mediæval art which, mixed up with the examination of barrows and tumuli, the investigation of British earthworks and Roman roads, the rubbing of brasses, and the collection of tiles and pottery, passes under the general term of Archæology; in the pursuit of which Antiquarianism holds the first place, and Art the second in the breast of the student. Nor yet do I mean that attempt to unite ancient art with modern practice in church buildings and church observances, which calls itself and is known as Ecclesiology. The true architectural student has, in fact, a far simpler, and, it appears to me, a far nobler course open to him. He has to trace out and to follow the progress of this great art, by the help of the admirable illustrations of it which remain still in all parts of Christendom.

He has to note the changes of form, in outline, detail, and carved work, through which Mediæval Architecture passed, from its earliest infancy, in the eleventh, to its highest perfection at the close of the thirteenth century, and subsequently declined again from this point to its final extinction in the sixteenth century. He has to mark and to record the indications of this gradual, but regular, constant, and simultaneous, progress, and to turn the lessons which it thus teaches him to his future use and profit. There is no nobler or more interesting study open in the whole range of the history of art and civilisation; and I rejoice in this opportunity of urging a society which has so much energy and vitality in its management, and so many active eyes and hands amongst its working and junior members, and which has now so firm a position and standing in the country, to put itself at the head of a movement, which shall have for its object the extension of elementary knowledge in the subject of church architecture, not only amongst its own members, but as well to those numerous amateurs in all parts of the country whose only means of acquiring any at the present time is limited to the annual meetings of the local societies to which they may happen to belong.

Now I am aware that it has been somewhat the fashion of late in certain quarters to decry this careful and attentive study of our national monuments, and to refer the young architect to his own inspirations, to the light of nature, and so forth, rather than to ancient example. This counsel is very delusive and very mischievous, and can only lead to failure. Every art has its alphabet and its grammar, as well as its language and its poetry; and it would be just as irrational to expect any one to comprehend and appreciate the latter before he had learnt the former as it would be to call on a youth to compose Greek verse before he knew how to read and write the language. No one can possibly design a good Gothic building who has not, by diligent study, become thoroughly imbued with the spirit in which those early masters thought, designed, and built. There is no royal road to success in this direction.

But it has been also urged that the knowledge thus obtained leads to servility, and disposes the student rather to copy than to invent and to design. But how was it with our forefathers,—the men who constructed all these glorious buildings? They were evidently all brought up and carefully trained in one school of art, and had not even the liberty and choice that we have; yet we never find them repeating themselves, or copying their neighbours' designs. Of the thirty churches which we visited in August more than half were built in the same period, and within a few years and a stone's throw of each other; yet there are not two of them the main features of which can be said to be identical, or even greatly similar. The truth is that the saying which applies to the poet, "*Poeta nascitur, non fit*," is true also, in other words, of the architect. It is not the study of excellent work which causes copyism, but the inability to turn the knowledge thus obtained to good account. An inventive and cultivated mind well trained in this noble school of art, and thoroughly imbued with the feelings and spirit which it breathes, should have no greater difficulty in the nineteenth than in the thirteenth century in producing works of merit and originality. But it is in architecture as in everything else; and it is hardly necessary to say that no amount of study will compensate for the want of natural talent and ability.

With these preliminary remarks, I will proceed at once to the matters on which I have undertaken to address you to-night; but here allow me to observe that you will, perhaps, be disposed to think, before I have finished, that the title of the paper, as I sent it to the secretaries, and as it is inserted in the programme, might have been more correctly stated; for although I shall certainly have to explain to you the use I propose to make of colour for the purpose of indicating distinctions of style, I shall have much more to say to you in regard to those distinctions themselves, the perception and appreciation of which are of so much importance to the architectural student. My first business, then, is to point out to you these distinctions. Now, in order to do this, it is absolutely necessary that I should make use of terms by which to characterise them; and, of course, it is very desirable, in doing so, to make use of terms in general use. But it so happens that it is impossible for me to do this, for the simple reason that there are no terms in popular use which are applicable to, at least, two classes of buildings, to which I wish to draw your special attention. I have, therefore, been obliged to invent terms for this purpose. They are contained in a little work which I published some years ago, but which, having been long out of print, is known, I dare say, to few who are present this evening; and to those who do happen to know them I dare say I can make the repetition of them less wearisome by the addition of several particulars which have not yet been published.

Of course, no one who has paid any attention to this subject is ignorant of the fact that it is to Mr. Rickman that we owe the first classification of our national architecture; and that he divided it into four styles, from the Conquest to the Reformation, which he called Norman, Early English, Decorated, and Perpendicular. Now, it is no reflection on Mr. Rickman to say that this division, simple as it is, and well-fitted as it was at the time he wrote, for the purpose for which he intended it, is not adapted to the advanced state of knowledge on the subject which we now possess, and does not answer the purpose of descriptive writers of the present. It does not, for example, make any provision for the two large classes of buildings to which I have already referred: I mean, first, those that were erected during the half-century that intervened between the first appearance of the pointed arch and the final disappearance of the circular arch; and, secondly, those which were constructed during the seventy years that intervened between the first appearance of tracery in windows and its employment in that flowing form which Mr. Rickman instances as the chief characteristic of his Decorated period.

Now, during these two periods of art, some of the most important and interesting buildings in the kingdom were raised,—buildings more characteristically national, perhaps, than those of any other period,—buildings which possess features and peculiarities that enable us to identify and to distinguish them satisfactorily and completely, as well from those which preceded as from those which followed them; but buildings which it is impossible to classify and describe, without circumlocution, by any of the terms which Mr. Rickman has bequeathed to us.

It was to provide a fitting place in our Nomenclature for these two Periods of English Art that I proposed, some years ago, the division of our National Architecture, from the Conquest to the Reformation, into six Periods instead of four, a division which has since then been coming into pretty general use, and which is illustrated in the six diagrams behind me.

Mr. Sharpe then proceeded to explain the characteristic features of these periods, as contained in his work on the Seven Periods of English Architecture;—and which have been more than once stated in detail in the *Builder*. He insisted on the importance of the Transitional Period; on the interest attached to the struggle that was carried on throughout its entire duration between the two forms of arch, and on the employment of the Pointed arch in arches of construction, and of the circular arch in arches of decoration; on the fertility of invention exhibited in the ornamentation of this period, and on the rise of a new school of English Art during this period, completely emancipated from the influence of earlier ideas brought over by Norman architects; and he instanced the large number of important buildings which still remain to us of this period.

Passing rapidly over the Lancet period, he dwelt on the characteristic features of the Geometrical period, in which he asserted that Gothic art attained its highest development in this country; he drew attention to the features which distinguish it as well from the Lancet as from the Curvilinear periods, and referred to the long list of noble buildings which illustrate this graceful period, as well on the Continent as in England; and amongst which he instanced the Presbytery of Lincoln Cathedral as belonging to the highest class of European art, whether as regards its outlines and its main features, or its sculptured details and carved work.

Mr. Sharpe then pointed out the evident decline in all these particulars in the succeeding Curvilinear period, drawing attention to the fact that the point at which this decline commenced may be said to be identical with the introduction of natural foliage into carved work, which took place in the middle of the Geometrical period. He described the unsuitability of the most usual forms of vegetation for the ornamentation of capitals and corbels; and, whilst admitting the excellence to which the builders of the fourteenth century attained in the imitation of the leaves of the vine, the oak, and the maple, pronounced the thin flat forms of these vegetable products to be unfit for solid stone or wood work, except on flat surfaces, and to be capable of being successfully executed only in such materials as bronze, copper, or iron. He remarked also that the mistake was soon discovered, and that before the close of the fourteenth century, conventional foliage having only a certain affinity with real foliage was again in vogue.

He accorded, however, to the Curvilinear period the merit which was due to the invention of flowing tracery, and the excellence of its sculptures; and instanced the Easter sepulchres to be seen in the chancels of Heckington, Hawton, and Navenby Churches, and in the presbytery of Lincoln Cathedral,—all belonging to this period,—as containing, in the figures of the soldiers and angels guarding the tomb, some of the most admirable representations of the human

* By Mr. Edmund Sharpe, from a lecture to the Architectural Association on the 18th inst.

form, and of drapery, to be found in any age or in any country.

Concluding this rapid survey with some remarks on the characteristic features of the work of the Rectilinear period, the lecturer proceeded to show how, in the preparation of the ground plans, sections, and elevations of buildings executed at different times, he proposed by the use of different colours to indicate the periods to which the several works might belong, in the manner which has been already explained in the *Builder*.

But the novelty on this occasion was the exhibition of a large number of diagrams of the arch-mouldings of the pier-arches of the cathedrals and abbey churches of the kingdom, which covered entirely the side walls of the larger of the two exhibition-rooms in Conduit-street, and which, executed in the six colours which Mr. Sharpe has appropriated to the six periods of his division, and arranged in their true chronological order, exhibited in the exact sequence in which these colours occur in the prismatic spectrum, the progress of the art of moulding in stonework from the eleventh to the sixteenth century. The lecturer having explained the manner in which these diagrams were prepared, and the usefulness for this purpose of the little instrument called the cymagraph, of which, although invented by Professor Willis more than twenty years ago, the use at the present day, he believed, was confined to himself and one or two others, proceeded to point out the different characteristics of the moulded work of the different periods, the slow and gradual progress of this transition, the power of fashion over the forms and profiles of these mouldings, and the certainty that it is in this direction that we are to look for the surest indications of the age of a building; and that it would be by no means impossible to be able shortly, by the help of these unfailing records, to determine, within a few years even, the date of a building that was constructed five or six centuries ago.

Mr. Sharpe concluded a lecture which occupied upwards of two hours, and was listened to throughout with the undivided attention of a large and intelligent audience, which completely filled the large room, by urging on the junior members of the profession, to whom he specially addressed himself, not to content themselves, in the pursuit of this study, with the examination and comparison of drawings and engravings, the study of which was, no doubt, at all times, but especially in the first instance, most desirable, but to lose no opportunity of visiting, studying, and making notes of every bit of ancient architecture to which they could obtain access; and expressed the hope, in case health and leisure permitted him, to renew the invitation which he had addressed to the Association last summer, and which had been attended with such pleasant results, and trusted that at least double the number who responded to it on that occasion would be found ready to devote a week next summer to similar researches together amongst an equally interesting group of English churches.

ON THE WEST FRONT OF WELLS CATHEDRAL.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary general meeting, on Monday, the 21st inst., Mr. E. l'Anson, Vice-President, in the chair, a paper "On the West Front of Wells Cathedral," by Mr. Benjamin Ferrey, F.S.A., was read. We make some extracts:—

The excessive beauty of the west front of Wells Cathedral, as a whole, is undeniable, and exhibits genius of the highest order. For its purpose of presenting to the religious spectator in a single façade the portraits of triumphant monarchs, saints, and prelates, in one great assembly, the design of the front is unequalled, and small is the deviation from true principles which has been perpetrated for this display. How monotonous would have been the west front of this great cathedral if its treatment had followed the hackneyed rule laid down by the author of the "Norman Conquest." Although ordinary artists may fairly be trammelled by such canons as are well set forth by Pugin and others, there have been, and ever will be, men of such originality of thought that their productions cannot be controlled by every-day rule. Their works are stamped with genius, and no better evidence of this assertion can be met with than will be found by those who care to study both the composition and details of Bishop Jocelyn's great work,—the west front of this cathedral.

The materials of the whole front consist of Doulting stone and blue lias columns, abaci, string-courses and pedestals; but this additional enrichment is carved in white lias, and adds much to the effect of the soffit, though palpably an afterthought.

Another noteworthy characteristic is the selection of the subjects of the sculpture, as pointed out by Professor Cockerell. They are chosen to impress upon the beholder the grand verities of the Christian faith; and there is a total absence of all apocryphal and superstitious subjects. Whether the intention of the sculpture was to express in stone the glorious theme of the Te Deum, as ingeniously suggested, or with whatever meaning they were executed, they are worthy of admiration, and a higher tribute to the excellence of the figures can hardly be adduced than the praise awarded to them by the great Flaxman, whose remarks were as follow:—

"Bishop Jocelyn rebuilt the Cathedral Church of Wells from the pavement, which having lived to finish and dedicate, he died in the year of our Lord 1242. The west front of this church equally testifies the piety and comprehension of the bishop's mind. The sculpture presents the noblest, most useful, and interesting subjects possible to be chosen. On the south side, above the west door, are alto-relievos of the Creation in its different parts, the Deluge, and important acts of the patriarchs. Companions to these are alto-relievos of the principal circumstances of the life of our Saviour. Above these are two rows of statues larger than nature, in niches, of kings, queens, and nobles, patrons of the church, saints, bishops, and other religious, from its first foundation to the reign of Henry III. Near the pediment is our Saviour come to Judgment, attended by angels and the twelve apostles. The upper arches on each side along the west front, and continued in the north and south ends, are occupied by figures rising from their graves, strongly expressing the hope, fear, astonishment, stupefaction, or despair inspired by the presence of the Lord and Judge of the world in that awful moment.

In speaking of the execution of such a work, due regard must be paid to the circumstances under which it was produced, in comparison with those of our own times. There were neither prints nor printed books to assist the artist. The sculptor could not be instructed in anatomy, for there were no anatomists. Some knowledge of optics and a glimmering of perspective were reserved for the researches of so sublime a genius as Roger Bacon some years afterwards. A small knowledge of geometry and mechanics was exclusively confined to two or three learned monks in the whole country, and the principles of those sciences, as applied to the figure and motion of man and inferior animals, were known to none! Therefore, this work is necessarily ill-drawn and deficient in principle, and much of the sculpture is rude and severe, yet in parts there is a beautiful simplicity, an irresistible sentiment, and sometimes a grace exceeding more modern productions.

It is very remarkable that Wells Cathedral was finished in 1242, two years after the birth of Cimabue, the restorer of painting in Italy; and the work was going on at the same time that Nicolo Pisano, the Italian restorer of sculpture, exercised the art in his own country; it was also finished forty-six years before the Cathedral of Amiens, and thirty-six years before the Cathedral of Orvieto was begun, and it seems to be the first specimen of such magnificent and varied sculpture united in a series of sacred history that is to be found in Western Europe. It is therefore probable that the general ideas of the work might be brought from the East by some of the crusaders.

But there are two arguments strongly in favour of the execution being English. The family name of the bishop is English,—'Joceline Troteman,' and the style, both of sculpture and architecture, is wholly different from the tombs of Edward the Confessor* and Henry III.,† which are by Italian artists. There are many compositions of the Almighty creating Eve, by Giotto, Florence; Bacon Amico, Buffalmacco, Pisa; Ghiberti, and Michelangelo. This is certainly the oldest, and not inferior to any one of them."

For dignity of expression and posture many of the statues can hardly be surpassed, and the affecting series of groups filling the long range of niches over the west triplet window, illustrating the Resurrection at the last great day, are wonderfully fine, and we can only regret that an imperfect knowledge of anatomy has somewhat marred the treatment of this most solemn representation. Nevertheless, the attitudes and expressions of despair and grief are exemplified in a wonderful manner, and the uplifting and rising from the tombs conceived and carried out in the most masterly way. It must be remarked in reference to these several groups, that they are not sunk or carved out of the solid masonry, but executed in detached blocks and inserted within the niches. Curiously enough, also, each group has an incised number, still distinctly visible, showing the order in which they were to be placed to the south of the façade. The bishops have their mitres and priests their tonsure, though, in other respects, all are entirely naked. Above and around these figures must be noticed the bold and splendidly undercut foliage which fills the spandrels, and, although much is decayed, there yet remains a considerable extent of this fine and effective carving standing out in the most artist-like manner; indeed, throughout the whole of this front, the capitals, bases, and hollow mouldings at the back of each of the insulated shafts exhibit beautiful carving, and present an admirable study for the carver.

Immediately above this Resurrection stage, as it may be termed, which extends not only across the west front proper, but fills also the sides of the two towers, there is a central feature, consisting of nine niches, with well-moulded trefoil heads, resting on as many blue lias columns, and containing what has not inaptly been termed by Professor Cockerell, "The nine orders of the Heavenly Hierarchy," though his supposition can scarcely be borne out now that a close inspection of the statues has been made. The sadly dilapidated condition of these statues is truthfully shown by the series of photographs: they are hopelessly going to ruin, and no effort, I fear, can save them; it is, however, a satisfaction to possess such unquestionable evidence of their condition, and to be able, even in their present imperfect state, to give some idea of their former vigorous outlines. Great difference of opinion prevails as to the course which should be taken with the sculpture, which is so completely crumbling away, that no trace of it will shortly remain. Some are for awaiting this result rather than touch the fragile remains, while others recommend that these figures should be at once removed while there is sufficient indication of their character, and be carefully preserved in the cathedral, and that others, executed by skilful hands, should be placed in the niches—a suggestion not unworthy of consideration.

Above the range of statues comes the tier of twelve niches, containing, beyond doubt, the figures of the twelve Apostles: most of them can be identified by the instruments used in their martyrdom, or by significant emblems. A peculiarity of much beauty, in the arrangement of these niches and canopies, deserves notice. The present dilapidated condition of the canopies and capitals gives the impression that the greater number of the sustaining columns are wanting, and several are gone, but the series of niches is divided into three large bays, containing in each four figures, the group being separated by projecting columns, while the figures themselves are divided by smaller attached columns at the back of each niche, the canopies to the figures projecting in a pendentive manner, and the soffites formed of free and beautiful foliage. This is an unusual treatment, but quite worthy of attention, as showing the happy manner of relieving the monotony of twelve similar niches as usually arranged.* A very imperfect idea can be formed of the beauty of these canopies, as, with the exception of fragments at each end, the weather has completely destroyed the other parts of the twelve canopies. The figures which fill the niches are, I think, unquestionably, of later date than the rest of the statuary, but they are singularly grand and effective works when considered from the distance from which they were to be viewed. Before describing each, I would call attention to the conventional arrangement of their positions. The cathedral being elected to the glory of God and in honour of St. Andrew, he, as the patron saint, occupies a central position, and is considerably taller than the other Apostles, his head filling the upper portion of the canopy. Another statue, with symbols so completely decayed that his identity is difficult to discover, may not improbably be St. James the Less, the figure being remarkably short, and the head unusually large. There are traces upon all the figures of colouring, though slight, yet in the protected parts of the robes the deep maroon colour is found, but no remains whatever of gilding, but the bright colours of the stone, affected by the weather, give almost the brilliancy of gold.

To those who are acquainted with this cathedral, it will hardly be necessary to point out the striking effect produced by the multitude of slender shafts at the several angles of the buttresses, and in the niches and arcades. These shafts, many of them in lengths of 13 ft., in one piece of blue lias, by their number and position form a great feature of the front; unfortunately a number of them, owing to the perishable nature of the blue lias, have either crumbled away or been blown down. At various times, as these accidents occurred, other shafts have been supplied, but instead of being rein-

* By Benvenuto. † Wm. Torrell.

* By a reference to the details of this front, given by Britton in his "Wells Cathedral," it will be seen that his illustration of this part is most inaccurate: every niche is there shown as supported by columns on the same plane, and the artist has completely missed the charming deviation from the common rule.

stated in blue lias or other grey marble, Doulting stone has unhappily been used. The charm, therefore, which was produced by the beautiful tint of the grey shafts has been wholly lost, and the monotony produced by a large quantity of small stone shafts is most palpable. There are, however, a few of the original shafts yet remaining, and the pleasing effect they produce, especially when the setting sun shines upon them, has only to be seen to be appreciated. Colour entered as much into the minds of the great architects of earlier days as form and composition, and no repairs to this beautiful west front can be effected, which does not reproduce, as far as practicable, the original conception in the colour of the materials.

In an early water-colour drawing of this cathedral, made by Turner, that great artist showed the beautiful variety of tint produced when a great number of the original shafts were yet standing: nobody knew better how to express in colour the pleasing contrast which was produced by the judicious mixture of these materials.

It is to be regretted that the perishable nature of blue lias renders it unsafe to be used in the proposed restoration: the softness of its colour blending so well with the Doulting stone, points to it as the most fitting material, but after much consultation it has been resolved to use Kilkenny marble instead; its colour resembles blue lias closely, and of its durability no doubt can be entertained, as all the buildings in which it has been employed affords ample evidence of its excellent qualities.

The Devonshire and other marbles possess a purple hue very unlike the blue lias; and where so large a number of columns, &c., are required, it is of the highest importance that the colour intended by the original architect should be secured. Those who have watched the condition of this great western portion of the cathedral have seen with deep regret the rapid decay going on from year to year: every winter or heavy gale produces fresh mischief, and within a late period the fall of canopies and portions of the statues and bases has become dangerous to those daily passing by the north-west corner of the cathedral.

It is of the utmost importance that every feature of this incomparable front should be saved, if possible; but this can only be accomplished by a timely renewal of those parts of the design which are essential to the protection of others. By way of example, I will only allude to the abaci to the capitals of the upper series of niches, containing successive groups of figures, illustrating the Last Resurrection. All these abaci and their supporting columns were of blue lias, or some imperfectly-formed marble. The former have *entirely disappeared:* not an abacus remains; and, as a natural consequence, the wet having penetrated to the carved foliage of the capitals, the frost has materially damaged them, and *all* will be destroyed in a short time, unless some steps be taken to arrest the progress of destruction. Again, I find that, although especial care was taken by the original builders to prevent the crushing or injury to the joints by the insertion of oyster-shells into all the bedding joints of the masonry, yet sufficient caution was not taken in placing the Doulting stone on its natural bed. Hence in many places it has already split and fallen, and there are *many parts* of the west front which must speedily become ruinous, and ought at once to be removed and replaced by good stone rightly bedded. It is not difficult to discover where this defective material is used, as a slight tapping on the face will crush the surface, already weakened by cracks and fissures, through which the weather penetrates.

It is important that nothing should be done to this front but what is really essential to the conservation of the valuable artistic work which remains. Neither *new forms* nor *materials* of any kind should be permitted; it is indeed lamentable to observe the disastrous effects which the last few seasons have caused to this beautiful façade. A mere comparison of the engraving in Britton's work, published in 1824, with the present state of the front, will show the ravages which time has produced; but this is not the sole cause of mischief. In former repairs, *cast-iron* ties and plugs were extensively used; these have done immense damage, and objects probably safe, if they had been left undisturbed, have been shattered by these injudicious efforts at protection. In any other precautionary steps, *copper* dowels and cramps only should be used.

HAMPSTEAD.

A NEW Baptist Chapel was opened on Thursday last, at Child's-hill, Hampstead. The design is Byzantine in style, and consists of nave and side aisles, with gallery at front end. The doorway is double, and the whole entrance is embraced by a bold circular arch, pierced with a quatrefoil window, the spandrels being filled in with encaustic tiles. The front window has seven quatrefoil piercings, and is inclosed in a semi-circular arch, with carved imposts and label terminals.

There are large schoolrooms under the back portion of the chapel, with class-rooms attached. The ground-floor is furnished with three vestries. The chapel is capable of seating about 500 persons, but it is designed so as to admit of side galleries and longitudinal extension, to eventually hold 800 persons. The cost of the whole, including boundaries, will be about 1,250*l.*

Mr. W. Allen Dixon, of Kentish-town, is the architect; and Messrs. Wicks & Co., of Limehouse, were the builders.

All doubts as to the purchase of the Heath for the use of the public can now be set at rest, for Mr. John Pollard, the clerk to the Metropolitan Board of Works, has given notice of his intention of applying in the next Session of Parliament for leave to bring in a Bill to confer upon the Metropolitan Board of Works powers to obtain it.

HAYMARKET THEATRE.

MR. W. S. GILBERT'S fairy comedy, "The Palace of Truth," is an excellent work, both in a dramatic and literary point of view. As for the plot, it is enough to say that all who enter the palace, with the exception of one who holds a talisman, are forced to speak the truth on every occasion, without being aware that they are doing so, to remind readers of fairy tales of the story on which the play is founded. The first act moves a little slowly, but the following two, when the influence of the palace is at work, are full of lively interest, dramatic surprises, and poetical writing. Mr. Gilbert, if he continue in the course he is now pursuing, will materially help forward our dramatic literature. Mr. Buckstone, Mr. Kendal, and Mr. Everill, who have parts, much aid the success; but the chief praise for acting must be given to Miss Robertson (the *Princess Zeolide*), and Miss Caroline Hill (*Mirza, her companion*), the latter of whom has never had so good a chance before, and makes the most of it. The acting of both these ladies, in the last act especially, is admirable, and worthily justifies the nightly recall of each after certain speeches. Two poetical landscapes, and an Eastern interior, by Mr. Morris and Mr. O'Connor, provide appropriate setting for an elegant and artistic work.

ELECTION OF A CHAIRMAN FOR THE METROPOLITAN BOARD OF WORKS.

AT a special meeting of the Metropolitan Board of Works a successor to the late Sir John Thwaites, chairman of the Board, has been elected.

By a resolution passed at a recent special meeting, the appointment to the office was to be for one year only, the salary being 1,500*l.* a year.

When the voting was proceeded with, the following was the result of the show of hands:—For Colonel Hogg, 24; Mr. Dalton, 15; Mr. Le Breton, 18; Mr. Runtz, 11; Mr. Savage, 16. Mr. Runtz having the lowest number of votes, his name was withdrawn.

A second show of hands was taken:—For Colonel Hogg, 23; Mr. Dalton, 15; Mr. Le Breton, 20; Mr. Savage, 13. Mr. Savage's name having been withdrawn, another poll resulted in there being 20 votes each for Colonel Hogg and Mr. Dalton, and 14 for Mr. Le Breton. On the two former names being submitted there were:—For Colonel Hogg, 20; and for Mr. Dalton, 16.

The final show of hands gave 22 votes for Colonel Hogg, and none against him. A division was, however, called, when there were—

For Colonel Hogg	24
Against	12
Majority	12

Mr. Collinson declared Colonel Hogg elected, and vacated the chair, to which the newly-elected chairman was conducted amid loud cheering.

Colonel Hogg thanked the members of the Board for having elected him to the highly r sponsible position of its chairman. He entered upon the duties, he said, with a feeling of the deepest responsibility, and he looked to the various chairmen of committees and other members to aid him by their co-operation in preserving the honour and dignity of the Board.

It having been known that the Board had determined to elect one of their own number to the chairmanship, Sir William Fraser withdrew his candidature. Lord Robert Montague was nominated, but not seconded, as a candidate, and the nomination, therefore, fell to the ground.

Colonel James Macnaghten Hogg is the eldest son of Sir James Weir Hogg, bart., a member of the Indian Council, and who represented Beverley and Honiton in previous Parliaments. He was born at Calcutta in 1823, and was married, in 1857, to the eldest daughter of Lord Penrhyn. Colonel Hogg was educated at Eton and at Christ Church, Oxford. He joined the 1st Life Guards in 1843, became major and lieut.-colonel in 1855, and retired in 1859. At the general election of 1865 he was returned, with Sir William Tite, for the city of Bath without opposition. In the House of Commons he was a supporter of the Conservative party. He described himself as "not opposed to progress, but against all rash and dangerous innovation; in favour of the relief of Dissenters from Church-rates, and of retrenchment in the national expenditure, but not so as to impair the efficiency of the Army and Navy." At the general election of 1868, Colonel Hogg was defeated at Bath. Since that time he has been without a seat in Parliament.

MEDIÆVAL PLANS.

WITH respect to your article last week on the use of architectural drawings by the Mediæval constructors, I should wish to mention a fact not too generally known.

The architect of the Cathedral of Caudebec (Caux) is buried in the Lady Chapel, well known for its pendent vault; one side of the memorial tablet is taken up by a *plan of the cathedral* slightly cut into the stone and blackened.

The date of the above church can easily be ascertained; from what I recollect of its architecture, I should think it belonged to the beginning of the fifteenth century.

Mr. Gwilt, in his *Encyclopædia*, gives a section of this Lady Chapel, and I should very much like to know how he obtained it.

JOHN B. COHEN.

OPAQUE GLASS FOR MURAL DECORATIONS.

WE mentioned, some time ago, the use that was being made by Messrs. Jas. Powell & Son, at Whitefriars, of opaque glass of various colours cut into forms for wall pictures, in the same way that transparent glass is cut for medallions in windows, the enamel shading being burnt in. They have since spent time in perfecting this material, and making it applicable for ornamental panels and for pavements, and have set up a reredos in Cheddington Church, formed entirely of this material. This reredos has a subdued and agreeable effect, and will doubtless prove very lasting. It seems to have been made purposely to represent an ancient work by irregularities and stains, a proceeding the principle of which we are not bound to commend. Mr. Alexander Nesbitt has recently exhibited drawings from some mosaics which are preserved in the Palace of Prince del Drago (formerly the Palazzo Albani) at Rome, and originally formed part of the decorations of a hall in the Palace of the Sicinian family, which hall was afterwards converted into a church, known as St. Andrea, in Catabarbara, and was pulled down in the seventeenth century. These mosaics are composed of pieces of glass and marble, cut into such forms as to fit them to form parts of the design, as in the same manner pursued by Messrs. Powell. Mr. Nesbitt writes,—

"Considering the style of art and the subjects, the story of Hylas, and figures of Egyptian divinities, the larger portion cannot with probability be attributed to a later date than the third century of our own era, and the other subjects probably of about the same period. Several facts known as to the manufacture of glass in Rome are quite consistent with the assignment of this date. Glass, of all shades and colours, both transparent and opaque, was at that period largely used by the Romans for covering walls, not only in Tesseræ, but in shaped pieces as stated above."

Messrs. Powell's endeavours in this direction should certainly be aided. The material, if properly set, is applicable for external as well as internal work.

THE USEFUL, STRUCTURAL, AND BEAUTIFUL, IN ARCHITECTURE.*

I DO not intend to treat the profession of an architect as something which requires to be dreamily thought of, or dreamily spoken about. I wish to look at it in a common-sense way, so as to see, if possible, what elements he requires to study to develop the high objects of his profession; and, to do this, I wish to consider all that is good in architecture as the result of that which is *Useful*, *Structural*, and *Beautiful*.

In speaking of these separately, I wish you to keep in mind, that, in my opinion, all three are needed to produce architecture in its truest or highest sense, viz., beauty being dependent on that which is truly useful and structural, or, to put it more strongly, I hold that it is impossible to get beauty, unless you have the stamp of fitness for the object intended to begin with, and then the adaptation of the material in a structural or symmetrical sense, these two elements being needed to lead on to that which we call beautiful.

I have heard it advocated that an ugly thing might be quite as useful as a shapely or well-proportioned thing; but this I cannot agree with in the fullest sense, as we every day find that the higher the development in an æsthetic sense, the greater its value as to use. No doubt we may quench our thirst by going on our knees at the burn-side, or we may do so out of the ugliest article that ever was devised; but you will agree with me that there is a higher sense of enjoyment in drinking out of a vessel which has the stamp of use and beauty combined. Or again, you may get shelter and a certain kind of convenience by living in a hut on the hill-side, or within the four walls of a building whose proportions are of the most ungainly kind; but surely the shelter and convenience of a house that is well shaped and well proportioned is more to be desired; as, besides the utility of it, an æsthetic sense of pleasure will be got, which the badly-proportioned building can never give; and it is with these views that I come to speak of the importance of

The Useful.

The need of the architect making this his first consideration is very obvious. A thing, to be of the highest value, must be useful, and nothing more so than the houses we live in. A house should be arranged so as to suit, or even improve, the habits of the people who live in it. It should be convenient for the carrying out of domestic arrangements in the simplest and easiest way. It should be a healthy house, otherwise it sadly fails in that which a habitation ought to be; just as we find that beauty and symmetry in nature go for nothing if the germs of disease are at the root of it.

In the matter of convenience and completeness, houses should be as far as possible self-contained, both inside and outside. This should be striven for in designing houses of all classes, but especially those of the lower, as the occupant is always more independent if he has his own door to go in by, and when in, to have each room so placed that it can be occupied independently of another; and no kind of designing taxes the architect more than that of arranging a small house so as to make it thoroughly useful in this respect.

A mistake is often made in not having the bedrooms of the largest size that the internal space will admit of, and the value of this is so well known to those who have the benefit of large sleeping-rooms, that the wonder is that architects should sacrifice the bedrooms of a house to those of the day-rooms.

No man in the world has more to do with the health of a community than the architect. He has the means, so to speak, of creating buildings which will either be constitutionally healthy or unhealthy. If the house is contrived, to begin with, so that it is deficient in that which provides for ample light, ample ventilation, and good drainage, it gradually becomes a diseased house, which nothing will cure; and I cannot impress upon you too strongly the need of designing houses which will prevent, as far as possible, that share in the death-rate of our city which unhealthy houses lead to.

The evil of ill-arranged houses, bad drainage, and overcrowding, as affecting the health of the people, is every day becoming more important and better understood. I therefore press upon you in the most earnest manner the responsibility that attaches to your profession in this respect.

A useful, healthy, and beautiful building has a moral and physical effect upon people, apart altogether from its value as a beautiful object; and I do beg of you that, in planning, you give places where bad air is likely to be generated, plenty of glass, plenty of daylight, and not windows which are mere pigeon-holes.

Glass does not shut out the benefits of sunlight to the same extent as stone walls do, and nothing is better for ventilation than the simple method of lifting up or taking down the half-sash of a window of ample size.

It pains one to see houses erected every day with these small openings, 12 in. square, or something like that, which, apart from what I have mentioned, cannot even give light for the purposes of cleanliness, and such a sparing of glass can have no excuse now that we have no tax upon the number or size of the windows of our dwelling.

Apart from providing means for plenty of light or plenty of air, a house can be so arranged as to situate those places connected with the sanitary portion of the house so that the drains need never pass under the building at all. This system of passing sewerage drains right through and under the building is one of the greatest sources of disease that I know of. It is a mere question of planning to have closets and sculleries on the back wall of the house, free to be lighted and ventilated from the open air; and when this is done, the drain never goes further into the house than half the thickness of the outer wall. The main drains should always be at the back of the building, and not at the front.

Another important consideration as to drains is their ventilation. Drains, if treated as well-ventilated coal-pits are, need have no bad gases in them at all. Drains, as usually formed, are sealed up at every point by traps and cesspools, and have the gases bottled up in such a way as to be under constant pressure, and find their escape into our houses at imperfect junctions of the drains, incomplete cesspools, or even through the cesspools themselves, as I verily believe that drains without ventilation have the gases acting in the same way as the gases of badly-ventilated coal-pits, and with their convulsions and explosions, forcing the bad air through the cesspools, however well trapped they may be; therefore I am not at all satisfied with the present system of trapping drains.

I cannot leave the consideration of the Useful without noticing particularly a failure in the design of many buildings as far as the Useful goes, and that is, the disposal of what is considered the inferior part of the house (but which I think as important as any), so that it is almost impossible to give it that share in the structural and beautiful part to which it has a right.

How often do you find, for instance, in villa dwellings, the kitchen part of the house standing out in the most objectionable way, which must not only render it an eyesore to those who own it, but a continual obstruction in the view of others.

Architects who have the laying out of the grounds for villa buildings, can do much to prevent this, by foreseeing how one building will stand in relation to another, as very often the ground is so laid off, that instead of the feuer commanding the view which he expected, he finds the principal rooms look out only upon that which obstructs the landscape.

Good planning, and giving the back of the building some little share in the taste which is wholly devoted to the front, would obviate this to a great extent.

Again, nothing about a house is of so much use as the chimneys, both for the purposes of smoke and ventilation, and yet how badly they are treated. They are placed in every possible awkward position, and are got rid of at the earliest possile point of the structure, so as to necessitate the various chimney-head devices which mar so much the sky-line of many of our street and villa buildings. Why should chimney-heads be treated so? You would suppose in some cases that the designer was ashamed of his roof and chimney-heads, and wished either to keep them out of sight altogether, or to degrade them so that they might have no share in the otherwise pretentious parts of the building. No parts of a building are more useful, or give the architect a better opportunity for crowning his structure with that which may be made beautiful.

Before leaving the useful, I would impress upon you the study that is needed for making our churches, theatres, and music-halls, useful to the fullest extent. In all three the same useful elements have to be considered, viz.:—

1st. The form which will give least obstruction to sound, so that both speaker and hearer may lose nothing. 2nd. The position of the speaker in relation to the hearer, so that each may see and be seen. 3rd. The comfort of both as to seating, heating, and ventilation, so that full enjoyment may be derived from that which is spoken, acted, or sung. These things being well considered, will assuredly lead on to that which is symmetrical and beautiful.

I stated at the outset that I wished to consider architecture in a common-sense way, and to get at the sense of this division of it; I know of no better teaching than that which you get by looking how nature works in this respect. We find, for instance, that when man tries to get that which is most useful, the health, symmetry, and beauty of the thing desired go hand in hand.

If you wish to grow a useful tree, or to rear a useful animal, you have to consider how to nourish both, so that their vigour may not be impaired by bad soil, or bad feeling, or by anything that will impair the health of either; and if this be wisely done, you may depend upon it that more perfect symmetry and a more perfect beauty will be the result.

As in nature, so in architecture; and this leads me, without further preface to speak of the

Structural.

Although I have divided my subject into the structural division of three, I find it a difficult matter to prevent repetition, owing to the way in which these blend and work into each other. But as this difficulty only proves my proposition, I must not grumble in having to use too many words, so long as you have patience to listen.

This blending is observable in that which leads to the judges of our flower-shows, agricultural meetings, &c., determining what are the best points of that which should get the prize. It is that which combines use, form, colour, and such like, which are all elements of beauty. For instance, the Clydesdale horse which would take a first prize would be the animal which, in the matter of use, would have strength, health, and action, and these would result in true symmetry, which again would give beauty to the whole.

A building may be convenient and healthy, but unless it is substantial and well-constructed it is of little value. No doubt a house may be made strong enough by the mere heaping up of material, without regard to proportion, symmetry, or anything else, but this is not treating the structure in a scientific way, or in that way which will lead on to its being beautiful. In any erection designed upon scientific principles, whether of iron, wood, or stone, there should be little or no waste of material; in short, neither more nor less than that which will give it stability and endurance. I admit that it is a difficult matter to get at this accurately, and that it is better to lean to the side of strength than to that of weakness, as beauty will not easily be marred by that which gives it power, unless you go so far as to create the feeling of the structure being overloaded by the material used in it.

An element in structure which ought never to be lost sight of, is to consider what form is best adapted for enduring the strain which comes upon it, keeping in view, of course, the nature of the material which has to be used. For instance, it is a gross mistake to construct an arch of timber where the strain is that of a moving load, while the same form may be quite suitable and last long enough if the strain is the result of mere dead weight alone. It is a mistake, too, to attempt to combine materials of different properties, such as iron and wood, or malleable and cast iron together; they will never work equally, and should therefore never be combined.

As to the true use of material, I do not believe in any rule-of-thumb arrangement, but in that which springs from a geometric foundation, and I would have architects therefore frame their designs upon that principle.

Taking stone as the material which architects have most to deal with in this country, I need not say how valuable a knowledge of Geology and Mineralogy is to the student;—geology instructing him as to what is likely to be found; mineralogy enabling him to determine whether the structure of the material is fit for the purpose required. The stone which is found in a district is always most suitable for it, if properly treated, and from a want of knowledge in these two branches of science I have seen architects and engineers adopt styles of building

* By Mr. James Gowans, architect; read at opening meeting of the Edinburgh Architectural Association, November 2nd. A number of photographs of Classical Structures, lent by Mr. Matheson and Mr. David Cousins, were exhibited.

quite unsuitable to the character of the material they had at hand; this occasioned the using of stone from a distance, at a much greater expense, and not more suitable for the thing that had to be done.

I will merely glance at other considerations as to the structure:—

1st. A building must be perfectly strong, and fit to stand without fracture; therefore the foundations require to be thought of,—that is, not founding one part of the building on soft, and another part on hard ground.

2nd. Provision for sustaining equally walls which have to go to different heights, or which may have to carry unequal loads.

3rd. The bonding of material together so that all may have their due share in sustaining the structure.

4th. The allowances which have to be made for settlement of walls, where a lighter thing has to be tied to a heavier, such as the spires and towers of churches, oriel windows, and such like.

5th. The strength and durability of material.

6th. The causes which lead to what is commonly called "*dry*-rot," but which I believe should be called "*wet*-rot," the result of timber being used which, to begin with, was constitutionally liable to the bad effects of damp, bad air, or other influences which tend to consumption.

These are only a few of the many points which, in a practical way, require to be considered, as every day we see buildings bulging, fracturing, and going to decay, from neglect of what could easily be guarded against in such cases.

No doubt some men are born with an intuitive perception for that which is proportionable and well adjusted; just as we find men who have naturally a bias towards other things, and which they acquire more readily than the man who has to go to the fountain-head for his instruction. At the same time, the man who has the thing born in him cannot dispense with the mathematical rule, which leads him to the truth of the science which he is acquiring.

It is the same in architecture, and the true way is to design upon some geometric principle, such as multiples of cubes, equal diameters, or uniform angles. By planning in this way, you economise space; you work upon harmonious lines, preventing anything like discord or competition, where angles have to be used; and you are sure thereby to have the elements of true construction and proportion in your building,—thus laying a foundation for that which will give beauty. At the same time, I need not tell you that although you may be working on true principles, you cannot all at once arrive at that which is anything like perfection in architecture. This is the case in everything else that requires development, and particularly so in architecture, as you cannot be building up the one day and pulling down the next, that which has been raised with the simple view of testing the principles on which you are designing.

In painting a picture, or modelling in clay, either of these costs little trouble, and little loss to obliterate if unsuccessful; but it is a different matter with a building, and what I would like above all things would be, that the younger members of the profession who have not yet gone far in the rut of off-hand designing or imitating other styles, would try this system, and persevere in it. I am certain they will arrive at the same opinion as myself, as to its value in getting easily at that which is most to be admired in architecture. In closing the consideration of the useful, I asked you to think of what Nature did in this way; and, if there be truth at all in the manner I am placing this subject before you, you must go to the same fountain-head to see what she does in the way of structure. The principles which guide Nature never vary in the highest embodiment of God's work. How perfectly the structure of our own bodies is designed to sustain the wear and tear of the varied strains which are put upon them, and how geometric the principles are which give symmetry to that which we consider most perfect in the human frame!

This brings me to consider

Beauty,

as springing from the useful and the structural. If a thing has the look of fitness and true structural proportion, it will please the eye without further adornment. I have already said that I thought a heavy responsibility lay upon an architect as to the effect of houses upon the health of the people, and also as to the power he had by proper internal arrangement, of improving the habits of all classes, more especially that of the lower. In short, he can forward the moral and physical condition of a community by the kind of houses which he plans. Besides this, I would lay another burden upon him, and that is, that he should use the power he has of teaching or developing the perception of beauty, which in the mass of the people lies dormant.

Some have naturally an eye for beauty in architecture, just as some have an eye for a good picture, or a good piece of sculpture. Now, these are teachable things, and the province of instructing the public in these arts, rests very much with the architect, the painter, and the sculptor; and you will never get their support to the same extent in the encouragement of these arts, until they can appreciate and put a true value upon that which is really beautiful. In architecture many people are ignorant enough to believe that the useful cannot be combined with the beautiful, unless at a sacrifice; or rather perhaps that not having an eye for that which is symmetrical and beautiful, they rest content with that which is ill-shaped and ugly.

One house may have simply the four walls and the roof that covers them to give it beauty in a symmetrical form, while another may have extreme size, broken outline, and profusion of ornament. But if the latter has not been designed in conformity with that which is proportionable, there can be no real beauty. There may be something in its mass and ornamentation that will please the uneducated eye, but which will fail to give that lasting pleasure, which beauty, springing from true principles, always gives. The education of the eye of an architect is what can only be brought about by a close study of that which is truly shaped and well proportioned; and one of the first and best lessons to get, is to design upon the geometric principles which I have before alluded to. Besides teaching the eye to catch that which is most subtle in beauty by drawing from nature, I have a great belief in the good that has to be got by modelling, drawing in perspective and sectional drawing, so as to enable you to see the object with the mind's eye from every possible point of view. No mere geometric line drawing can give you this faculty, and I know of none more valuable to the architect for producing beauty in detail. How often do we find something designed which looks very well on paper, but when executed and taken in conjunction with other objects, which have an influence upon it, appear quite different from what was expected.

One of the early lessons in this way which I myself got in drawing, was the practice of making sections of the most intricate things, cutting them up in every possible direction, so as to get at the form which this method of drawing gave.

Another thing that mars the beauty of some of our principal buildings, and which could easily be foreseen by mere perspective drawings alone, is the effect such structures have in conjunction with other important buildings, or surroundings. The frontage gets all the beauty, so that while in looking at the geometric front of the structure, you are ready to admire it, yet the moment you step aside and allow the eye to reach the roof, gable, or chimney-heads, you find an ill shape and ungainliness which quite destroy the general effect of the building itself as well as those adjoining it.

The detail of a building should, like music, be harmonious and truthful. Nothing is more painful to my eye than a conglomeration of angles all competing and all at discord with each other. You find nothing of this kind in what are called the "true styles." The ornamentation of such styles naturally springs out of the construction, or takes its key-note from the geometric figure, which lies at the root of the design. For instance, in the Greek in its purest, the geometric figures are the square, the circle, and the elliptic curve, and these are all that are needed for its development, whether as to use, symmetry, or beauty,—or again, in the Gothic, the square, the circle, and the equilateral triangle are the only geometric forms that are required to bring about the same result. Another thing which, to my surprise, exists notwithstanding all that has been said and written about it, is that designers still attempt to get beauty by using deceptive objects, which would lead one to suppose they had begun by making the exterior of the building their first thought, and that the inside had to be sacrificed to the outside. This springs from trying to imitate styles of building belonging to times when the wants and requirements of the people were very different from what they are now.

I do not object to an architect adopting the features of any particular style, if that style can be produced by the natural wants for which the building is intended; but I do object to the abusing of such a style as the old Scotch Baronial, which seemed to have sprung up as something indigenous to our country, at a particular time in its history; for we must remember that the features of that style which we so much admire in original buildings, were the result of honest and true designers, working out from the necessities of the interior that which gave power and beauty to the exterior. They at that time needed their embattled towers and turrets, and hence they used them; now we have no need of such things, and hence their uselessness.

I have already said that you may rear up a building which, from its size and expensive decoration, will for a time be spoken of as beautiful; but no lines are, I think, more true than those which say that "Beauty unadorned is adorned the most." In my experience I have found that the simpler a thing was, the more difficult it was to design it so as to give beauty. For example, a workman's house, which has nothing about it but its form to make it beautiful, taxes the designer fully as much as a large building where expense is no object. A man who can plan a small house with all that is useful, structural, and beautiful; who can, with a well-proportioned and simple exterior, have fitness of purpose, is, in my opinion, an abler designer than he who builds up a large structure, gets what passes for beauty, but which is simply the result of a conglomeration of broken lines, badly-proportioned masses, confusing and competing angles, blind windows, mock turrets and tympani, and such other deceptions. I am sorry to see these things adopted by architects in our city. Do beware of this deceptive system of designing: it is untruthful to begin with, and in that way can never be useful. Nature, which is the fountain-head of all beauty, never acts thus. Everything is needed and suited to its purpose, and the higher the form the more absolutely are these rules adhered to. What a finish is given to the human figure by that covering which conceals from the eye that which is needed for the use and structure of the body, but which otherwise would be unpleasing! In like manner, a building that is well proportioned and symmetrical is ready to receive adornment which will enhance its beauty, but that adornment should spring from that which gave the form and shape, or from borrowing from nature emblems appropriate to the uses for which the building was erected. In this way a building may not only be enriched and properly dressed, but it will be able to tell its own story as to the uses for which it is intended.

In conclusion, I should like to press upon your Society, what I have pressed in other quarters, and that is, the need we have of getting our architectural students more thoroughly educated in an elementary way. Under the present system of training, the pupil is expected to learn all that he ought to know of his profession by a few years' drawing in an architect's office, where there is little or no instruction given as to the principles of his profession, the chief or head clerk's time being too much taken up with the bustle of business. Hence we find that there is much ignorance of the main objects which architects ought to attend to, such as those I have pointed out; and things will not mend in this way unless architecture meets with encouragement from Government, or otherwise, as has been done in forming chairs for agriculture, engineering, and such like. I have said that an architect has more to do with the health of the people than any other person: this being so, common sense tells us that his first duty is to take means for making himself thoroughly acquainted with all that will conduce to that end, and so act upon it. A healthy nation is an able nation in every way. It is more useful, stronger, and more perfect than a people who are morally and physically weakened by bad housing and bad drainage, the improvement of which is particularly the province of the architect.

In closing this address, I trust that I have struck at the truth in some of the points which I have noticed; and, though rudely conceived, that it may be like a building whose merits lie in the usefulness and correctness of its design, and not in the polish or ornamentation of the material of which it is composed.

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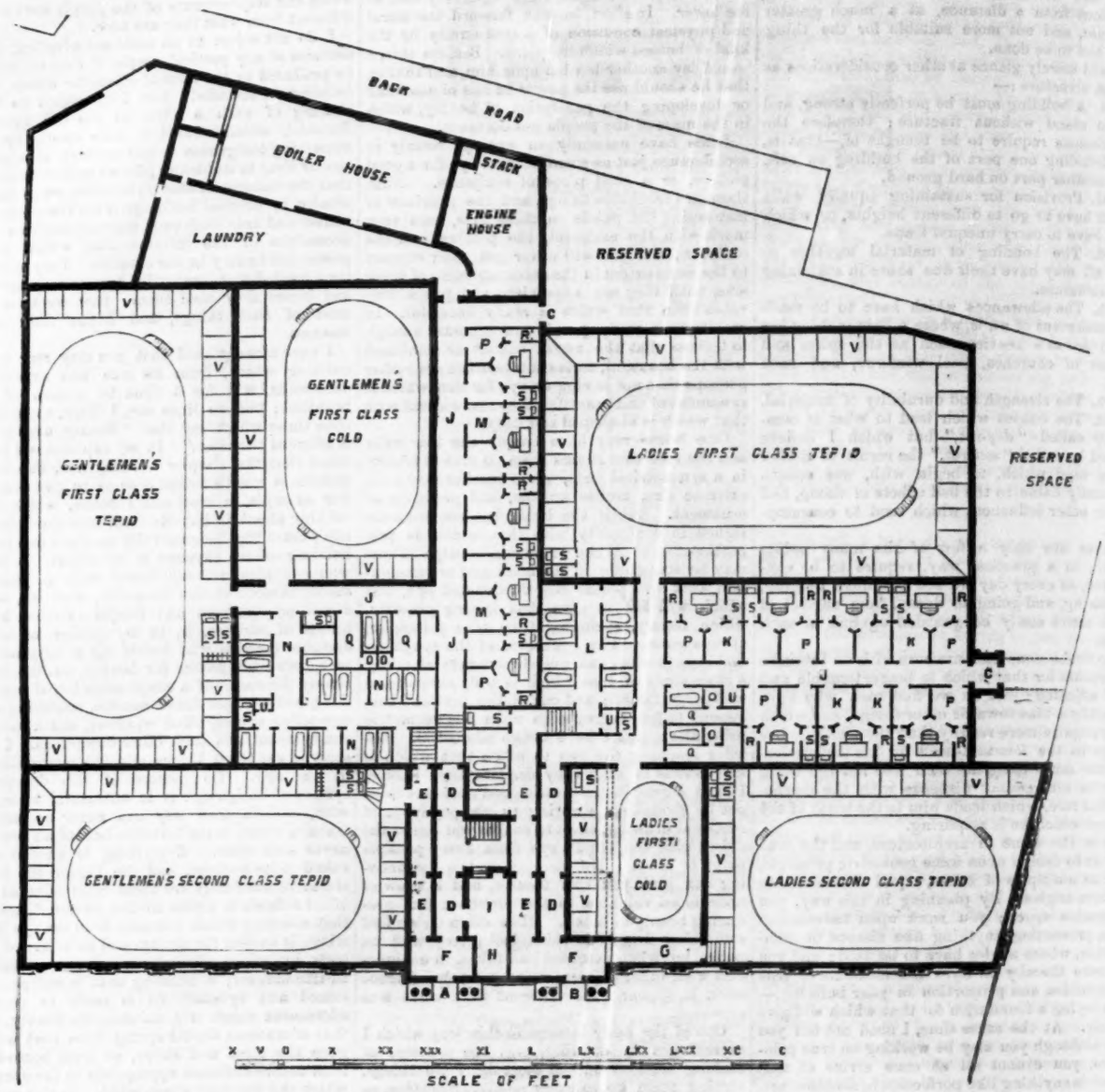


NEW BATHS, SOUTHPORT, LANCASHIRE.

Plan of Ground Floor.

REFERENCES.

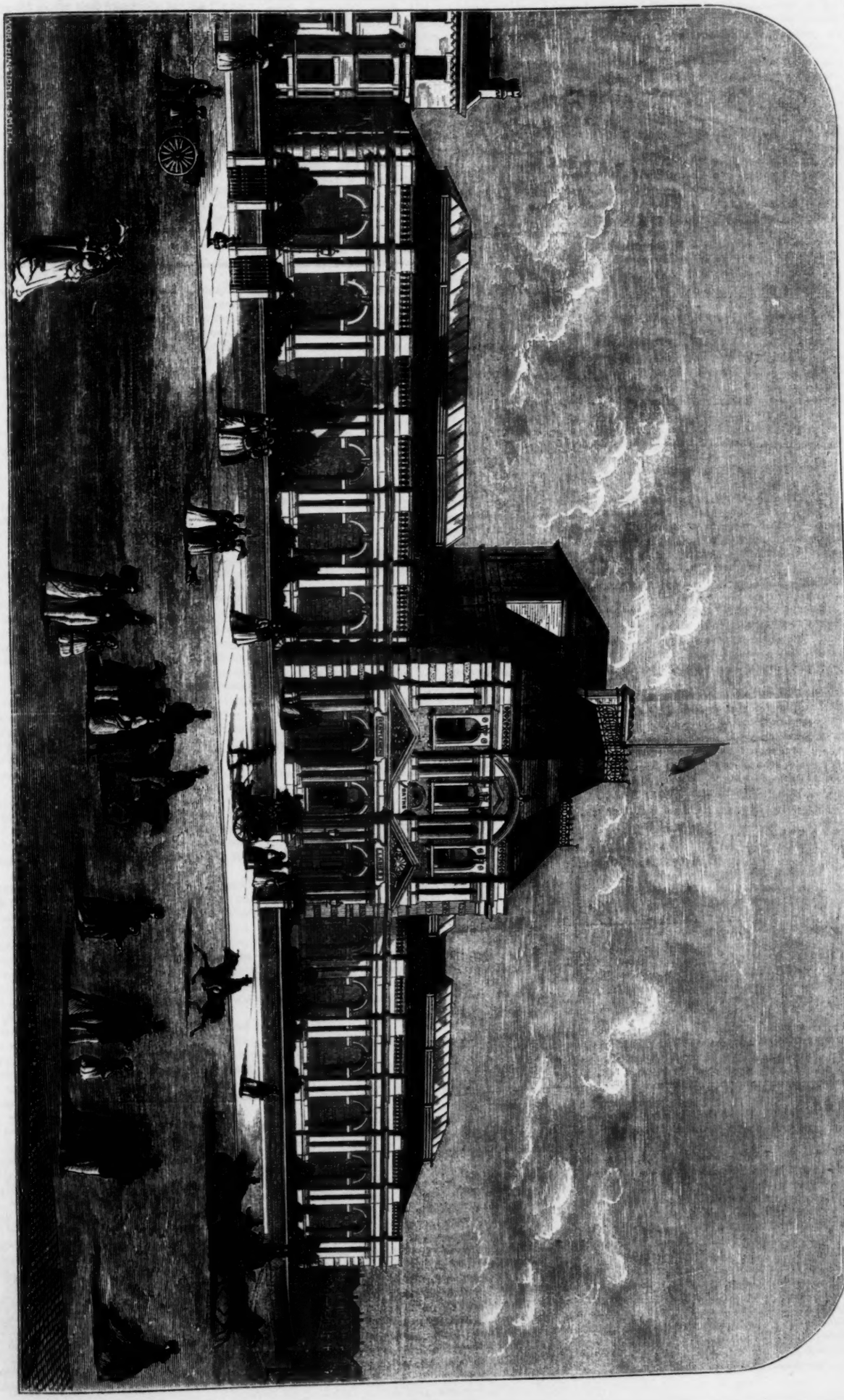
A. Gentlemen's Entrance.
B. Ladies' Entrance.
C. Side Entrance.
D. First-class Entrance.
E. Second-class Entrance.
F. Lobby.
G. Corridor.
H. Tickets.
I. Office.
J. First-class Corridor.
K. Ladies' First-class Private Baths.
L. Ladies' Second-Class Private Baths.
M. Gentlemen's First-class Private Baths.
N. Gentlemen's Second-class Private Baths.
P. Dressing-room.
Q. Vapour Bath.
R. Shower.
S. W.C.
U. Soap.
V. Dressing-boxes.

OPENING OF THE NEW BRIDGE OVER THE SEVERN AT STOURPORT.

THIS new bridge has been thrown open to the public. The viaduct, which is about 1,000 ft. long, consists of forty-five segmental arches, the centre one over the river being of iron, and 155 ft. clear span. The spandrels of this arch are filled in with tracery, a shield forming the centre-piece with bars and the initials "S. B. T., 1870." There is a projecting cornice supported by ornamental brackets, surmounting which is an open balustrade, with panels and pilasters, and a moulded handrail forming capping, and ornamental lamps on each side. The abutments and a portion of the land arches, extending to about 100 ft. on each side of the river, and also the parapet walls surmounting the same, are built of Higley stone. There is a string-course and cornice formed of the same material, as also the moulded caps to pilasters. The remaining portions of the viaduct at either end are built in brickwork upon piers rising from inverted arches; the whole of which, as also all other portions of the masonry, are upon a foundation of concrete made of gravel and blue lias lime. The parapet upon this portion of the work is in brickwork, forming panels and pilasters, having a yellow moulded brick string, and coped with Higley stone.

The roadway is 25 ft. wide, and the footpath 5 ft., the latter paved with Staffordshire blue diamond bricks, the same being kept in place by a Rowley rag curb. There is also a new toll-house: this is faced with pressed red bricks, with Higley stone dressings: a porch of the same material shelters the toll-keeper. About ten months were occupied in erecting the temporary bridge and approaches, taking down the old bridge, and putting in foundations for the new. The erection of the superstructure has occupied nine months. There has been used in this work the following material:—Timber in piles, coffer-dams, staging, and temporary bridge, 20,000 cubic feet; 20,000 cubic feet of stone, 5,000,000 bricks; concrete, 5,000 yards; and 500 tons of iron.

The designs were supplied, and the works carried out, under the direction of Mr. Edward Wilson, C.E.; Mr. G. H. Ashbee being his acting assistant. The contractors for the ironworks were Messrs. Lloyd, Foster, & Co., of Wednesbury. The contractor for the other portions of the work was Mr. Henry Hilton, of Birmingham. The ironwork was carried out under the superintendence of Mr. R. Braithwaite, the other portions of the work by Mr. T. Vale; Mr. J. Eales, acting as clerk of works for the engineer. The bridge is subject to a foot-toll of ½d., the tolls for vehicles being double the former amount.



SOUTHPORT BATHS.—Messrs. Horton & Bridgford, Architects.

SOUTHPORT BATHS.

These baths are now in course of erection, by the Southport Baths and Assembly Rooms Company, Limited, on the site of the late Victoria Baths Promenade. The material, externally, is Burnley Pierre-point facing, with Longridge stone dressings. The whole of the baths will be on the ground floor, and will be well lighted by top-lights. All the internal walls will be plastered, and the first-class swimming-baths arcaded, with moulded caps and architraves. The principals of the large roofs are of cast-iron, elliptical in form, cast in two pieces, and will spring from moulded corbels, at level of pilaster caps.

The stairs at back of office lead to a board-room, 40 ft. by 20 ft., with retiring-room and lavatory adjoining, and a mezzanine floor is formed between this and the ground floor.

The whole will be opened for public use by May next, and the total cost, including engineer's work, will be about 23,000*l*.

Messrs. Horton & Bridgford, of Manchester, are the architects; Mr. C. H. Beloe, of Liverpool, is the engineer; and the contract has been let to Messrs. Swindells & Little, of Manchester.

We will go into some particulars as to the intended supply and the arrangement of the machinery.

The salt water required for the baths will be pumped from the sea through cast-iron pipes, 9 in. in diameter, laid on the shore, down to low-water spring-tides, which is a distance of 1,480 yards from the pumps, thus ensuring a constant supply of water, except for a short period at extreme low-water spring-tides. At the end of the pipes a cast-iron cylinder, 6 ft. diameter and 6 ft. deep, is fixed. Inside this cylinder there is another, 1 ft. 6 in. in diameter, and of the same depth as the outer one. In the small cylinder is fixed an india-rubber foot-valve, resting on a cast-iron grating. The space between the two cylinders is filled with stones and gravel. The outer cylinder is open at the top, while the inner one is closed at the top, but has perforations in the lower part of its circumference. The suction-pipe from the pumps communicates only with the inner cylinder above the valve. The water will thus have to pass through the stones and gravel between the cylinders, and to rise up in the inner one before it enters the pipe. By this means it is expected that a considerable portion of the sand will be removed from the water before it reaches the pumps, and thus diminish the wear and tear of the working barrels.

The suction-pipe is carried from the shore, through a culvert under the Esplanade, and thence into the building, where it is laid on the floor of the pipe corridor, the walls of one of the principal corridors of the building having been carried down to a great depth for this purpose, thus rendering the pipes easily accessible for repairs.

The pumps are placed in a dry well, sunk under the engine-room, which, together with the boiler-house and laundry, are situated in the rear of the premises, so as to be as far removed as possible from the portion of the building frequented by the bathers, and there is access to a back street for the convenience of obtaining coals, &c. The pumps are four in number, two being of the bucket and plunger type, and two having plungers only.

The stroke of each of the pumps is 3 ft., and the diameter of the working barrels is 12 in. Only two of the pumps will be worked at one time, the bucket and plungers being used when a large quantity of water is required, and it is necessary to draw it from near low water. The plunger will be used at high water, when the lift is reduced to a minimum. The pumps are worked from a counter-shaft fixed over the well, the connecting rods being so arranged that they can easily be connected with either set of pumps. The engines, two in number, are horizontal, and worked with high-pressure steam. They have cylinders 10 in. in diameter, with a stroke of 18 in. One or both of these engines can be used as required.

The pumping machinery is capable of furnishing a supply of over 313,500 gallons in twelve hours, which is more than can possibly be required in that time. The steam needed for the engines and for heating the water will be supplied by two doubled-flued Lancashire boilers, each 27 ft. long, and 7 ft. in diameter.

The laundry, which adjoins the boiler-house, is fitted with five steaming and similar number of washing tubs, which are supplied with hot and cold fresh water and steam. In one corner of the laundry is placed one of Messrs. Manlove & Alliott's hydro-extractors, which is worked from a shaft connected with the pumping-engine. After the clothes have been steamed and washed they will be placed in the hydro-extractor, which will rapidly remove the 'heavy wet' from them, and the drying process will be completed by placing them in drying-rooms constructed over the boilers.

The salt water, after leaving the pumps, will be conveyed to two filter-beds, each 35 ft. by 28 ft., situated under the open space in front of the baths. The water will pass through beds of sand, gravel, and coke, in all 5 ft. thick, and then flow into a large covered brick tank adjoining the filters, capable of containing 177,000 gallons. From this tank it will flow by gravitation into all the baths, or can be pumped up into cisterns placed at the top of the building, in order to obtain a greater pressure for shower-baths and fountains.

There is also a tank over the boiler-house capable of holding 42,000 gallons: this will be used as a reserve for unfiltered salt water, which can be pumped into this tank when the filters and large clear-water tank are full, and which can flow into the filter-beds by gravitation when the pumps are not at work.

The plunge-baths will be treated by means of perforated copper steam-pipes, placed in channels under the floor of the baths, but which are in communication with the water in the baths. The plunge-bath, dressing-boxes, and the corridors, will be warmed by steam-pipes.

The hot salt water for the private baths will be supplied from two heaters, constructed in accordance with Messrs. Hamilton Wood's patent. They are each 10 ft. high, and 5 ft. in diameter inside, and are lined with copper, and fitted with copper steam-pipes; they are placed in chambers prepared for their reception in the front portion of the building, and are supplied with water from the upper cisterns. The first-class private baths will be supplied with hot and cold fresh water, in addition to the salt water. Two tanks for the fresh water are placed over the engine-room, and the water in one of them is heated by the exhaust steam from the engine. The fresh water will be obtained from the Water Company's main, and in addition the rain-water from a considerable portion of the roofs will be collected in an underground tank, and pumped into the supply-tank by means of a steam donkey-pump. The condensed water from the salt-water heaters will also be pumped up and used for feeding the boilers.

The total quantity of water contained in the plunge-baths is nearly 230,000 gallons. The amount of water contained in the salt-water tanks will be 254,000 gallons. There will be upwards of 1,500 yards of cast-iron pipes of various sizes from 9-in. to 3-in. in the building, exclusive of those on the shore. The whole of the machinery, filter-beds, engine-house, and the hydraulic arrangements were designed by and are being constructed under the supsrintendence of Mr. Beloe. The contractors for the engineering works are,—for the engines, boilers, tanks, &c., Mr. J. Clayton, of Preston; for the 9-in. pipes, Messrs. J. Varley & Co., of St. Helen's; and for the pipe-laying and culvert, Messrs. Fawkes & Maud.

The filter-beds and engine-house are being constructed by the company without the aid of a contractor.

The total cost of the engineer's works will be about 6,200*l*.

MENDELSSOHN AND STAGE MUSIC.

Sir,—The writer of some recent interesting and suggestive articles in the *Builder* on theatres and "gaffs," diverged, in the last number but one, into a consideration of the manner in which Mendelssohn had illustrated the "Midsummer Night's Dream" by music; the matter being worth, in his opinion, "a few lines of even indifferent talk." I fear your musical readers must have thought his talk on this matter very indifferent. He complains of Mendelssohn for having written musical illustrations not to be played whilst the speeches were being spoken, but between them; and would have had him write a continuous current of musical commentary to run parallel with the spoken dialogue on the stage. I should have thought that to any one possessed of a faculty of criticism, even if not uniting thereto an ear for music, it would be evident that as spoken words and musical tones and phrases appeal to two perfectly distinct faculties in the hearer,—the former, as I said in my last letter, appealing to his intellect, the latter to his feeling and imagination,—the two cannot possibly be rightly apprehended at the same time; especially as music absolutely demands a fixed and unalterable ryhthm, to which no spoken dialogue can ever conform. The only result of an attempt to combine the two would be that one must over-ride the other: if the music is to be really worth attention, the words must be drowned; if the words are to be properly taken account of, the music must be reduced to a mere mechanical drone, to avoid competing with the dialogue. But it is unnecessary to argue such a question on high critical grounds: the simpler practical test may be taken of trying how any musician would stand hearing a whole evening of talking against music. Any one so appealed to could probably bear testimony that, when in the midst of enjoying anything worth calling music, the slightest remark in an ordinary conversational tone is enough for the minute to destroy all one's pleasure in the music, and occasion often the greatest irritation and annoyance.

The theory propounded is just one of those which look very original and symmetrical on paper, but which every one practically conversant with the branch of art in question must feel at once to be erroneous. Mendelssohn did once, however, as I before observed, make the very experiment alluded to, of combining musical accompaniment with dialogue in one of his cantatas, and the result is, that this part of the work, when performed, is merely tolerated out of respect to his memory.

The writing of long interludes between acts and scenes is, I think, a perfectly legitimate way of keeping up the tone of feeling in an audience during the necessary intervals of a high-class drama, and a resource of which I wish we had more experience in English theatres. Beethoven did the same for Goethe's "Egmont," and Shubert for Schiller's "Rosamunda."

As a matter of fact, it is not the case that Mendelssohn never attempted opera: he wrote a short opera called the "Son and Stranger," containing one of the best comic parts in modern opera; and at the time of his death he was diligently searching for a fitting libretto for a grand opera, on which his mind was very much set.

I read the earlier articles on "gaffs" with so much interest that I can only regret that the writer should have been tempted to push his ideas into a theory which every musician must feel to be totally untenable, and which, if carried out, would soon result in emptying our theatres.

H. H. S.

THE BLOCK BOOKS: A CHALLENGE.

The contribution of Mr. John Piggot, F.S.A., published in the *Art Journal* of the present month, entitled "Albert Dürer and the Fairford Stained Glass," as well as the paper of Mr. Planché which appeared in the last number of the *Builder*, upon "Early Wood-engraving in connexion with Playing Cards," having both mentioned my name in reference to the opinions entertained by me upon the subject of "The Block Books," seems to impose upon me the duty of reviving that subject, so deeply interesting in every point of view in the history of literature and art, and to again invite attention to it, in the hope that at least those writers who have hitherto so strenuously upheld the "old system" may afford the public the advantage of their advocacy, and prove, if possible, my reasoning (which entirely reverses all preconceived notions on the subject) to be fallacious. Mr. Planché but does me justice in expressing his belief that, so long as the truth is arrived at, I am wholly indifferent whether the result is favourable to my views or not. "*Tenax propositi*" is and will remain my motto in the controversy, until I am convinced of my error; but if public judgment, founded upon a full knowledge of the merits on both sides, should be pronounced against me, I will not only cheerfully accept such decision, but very heartily thank my opponents for having cleared up the mystery and elucidated the truth.

After a lapse of two years, therefore, I, with the utmost confidence, repeat my denial, "That printing with movable types was preceded by engraving on wood;" and, further, I challenge literature to prove that a copy of the Block book known as the "Biblia Pauperum" was actually in any known library, public or private, prior to 1485, or known then to be in existence. I

should add that I reject as utterly false every copy of the Biblia which, on the face of it, purports to bear a date anterior to 1485, unless it fulfils the condition I have stated.

When those questions have been decided, it will then be time enough to proceed to the consideration of my declaration, viz., that to Albrecht Dürer is due the credit of having produced the "Block book."

I trust I am not violating any rule of propriety in expressing an earnest hope that Mr. H. Noel Humphreys and M. Berjeau, the best modern writers on the subject of early engraving and the Block books, will take the lead, —enter the lists,—and attempt to uphold the soundness of the theories enounced by them in their respective works, with which I am thoroughly acquainted, and the correctness whereof, so far at least as relates to the block books and early wood-engraving, I directly impugn; and I cheerfully accord them the aid of those distinguished authors on the Continent, who have devoted so much time and attention to the subject. I am content to fight the battle single-handed, and to fairly argue the subject in all its details.

In strict conformity, therefore, with the rules by which such matters are regulated, I now call upon the champions of the doctrine that "wood-engraving preceded printing with movable types," to come forth, and make good the truth of their assertions. HENRY F. HOLT.

IMPORTANT TO BUILDERS AND THE PUBLIC.

CAREER OF AN IMPOSTOR.

At the Middlesex Sessions, on the 22nd inst. (before Sir W. H. Bodkin, Assistant-Judge), John Fordham Apps (*alias* Papps, *alias* Fordham), a tall, respectable-looking man, described as a commission agent, and of superior education, was indicted for obtaining by means of false pretences, from Thomas Hussey, of Kensington, builder, the sum of 20*l.*, with intent to defraud. There was a second indictment, for obtaining from George Gilham, of Old Kent-road, decorator, the sum of 15*l.*; a third indictment, for obtaining from James Charles Ring, of Peckham, builder, the sum of 10*l.*; a fourth indictment, for obtaining from Mr. Walton, of Bloomsbury, builder, the sum of 10*l.*; a fifth indictment, for obtaining from Messrs. Sansom & Yates, of Kennington, builders, the sum of 30*l.*; and a sixth indictment, for obtaining from Messrs. Corbett & McClymont, of the Redcliffe Estate, West Brompton, builders, the sum of 15*l.*, all with intent to defraud.

Mr. Montague Williams (instructed by Mr. Poncione, of 5, Raymond's-buildings, Gray's-inn, and Wood Green) prosecuted in all the cases; and Mr. Harris defended the prisoner.

The prosecution revealed an amount of artifice and persevering impudence almost without parallel, and the *modus operandi* appeared to be the same in all cases, and having selected some of the most wealthy builders in the metropolis, who had building works in operation, he went to the place of business or house of the builder selected, with his arm in a sling, and stated that on a particular night he had fallen over some timber, stone, or bricks, left carelessly about the works, and in one case he alleged he had fallen down a cellar, and having thereby broken his arm, he demanded compensation for the injuries he had sustained in consequence of the negligence of their servants. He pointed out the locality where the accident was said to have taken place, and having had a personal interview with the master builder, it was usually followed by a letter, and they are nearly duplicates of each other. One of these letters, sent to Messrs. Colls & Sons, builders, Camberwell, was as follows:—

"9, Robertson-street, Queen's-road, Battersea,
21st of October, 1870.

Gentlemen,—I beg to inform you that on Thursday night last, I fell over your stone, dangerously left in the public way, by the side of St. Philip's Church, Queen's-road, Battersea. On going direct to St. George's Hospital, I found I had broken my left arm. Mr. Rowland, the house-surgeon, set the bone. As I in no way contributed to the accident, either by neglect or want of caution on my own part, and as, in addition to pain, the injury entails loss, &c., I must hold you liable for damages for injury, caused solely by your servants' negligence in allowing so dangerous an obstruction in the public way without a light. If you desire a medical examination, I shall be happy to meet your surgeon with mine, by appointment.—I am, gentlemen, yours obediently, JOHN APPS.

To B. Colls & Sons, Builders, Camberwell."

Another letter, addressed to Mr. Gilham, from whom he claimed damages, was as follows:—

"50, Page's-walk, Grange-road, Bermondsey, Dec. 10.

Sir,—The gentleman you refer me to informs me he had nothing to do with the timber on the footway. As it is of that I complain, I must again inform you I hold you alone liable for the accident. In doing so, I wish you to understand I do not desire to make a property of the affair, but having sustained an injury of a serious nature that must incur loss and expense, I ask compensation for the same. If, therefore, you are disposed to meet me in the matter without prejudice, I am open to any fair proposal, and so amicably settle this unpleasant affair. If not, I must in justice to myself, though reluctantly, place the case in the hands of a solicitor, and await the result of a verdict from a jury. Thanking you for your sympathy as expressed in your note,—I am yours respectfully, J. PAPPS.

P.S.—I shall be at home to-morrow; or a reply appointing an interview will oblige."

In the case of Messrs. Corbett & M'Clymont he sent the following letter:—

"9, Robertson-street, Queen's-road, Battersea, Sept. 3.

Gentlemen,—I have to inform you that I fractured my arm on Monday night last by falling over your building material, dangerously left in the footway at your works, Finborough-road. I respectfully inform you I hold you liable, and in doing so beg to add I do not desire to make a profit from the circumstance, or to enter into litigation on the subject unless compelled, but having met with an injury that, in addition to pain, entails loss, expense, &c., and as I in no way contributed to the accident, either by neglect or want of caution on my own part, I must ask some compensation for injury caused solely by your servants. If, therefore, you are disposed to satisfy yourselves of particulars, and meet me in a spirit of fairness, I shall be happy to concur in any reasonable arrangement that may lead to an amicable settlement. Should you require a surgical examination I shall be pleased to meet your surgeon by appointment at my house, or at Dr. Leslie's, Queen's-road. I presume you know of the occurrence from your watchman, or Mr. H. Smith, your clerk of works.—I am, sirs, yours faithfully,

C. FORDHAM.

Messrs. Corbett & M'Clymont, 2a, Redcliffe-gardens, Fulham-road."

On the strength of this letter, he received 15*l.*, and from all the rest he received money under like representations; but on Mr. Hussey being applied to, he had his suspicions, and rigorous inquiries were instituted by Mr. Hamilton, Messrs. Colls & Sons' manager, which showed that the prisoner was only an impostor living upon these false representations. Accordingly, Mr. Hussey had a policeman ready at his house; and when the prisoner came to make his demand for the "injuries" he had sustained, a cheque was given him for 20*l.*, the prisoner giving a receipt for the money in full discharge of all claims. Before, however, the prisoner left the place the policeman made his appearance, and took him into custody, with the cheque in his possession. When he was in custody a great number of persons came forward to give evidence how they had been swindled by him in a similar manner; and Mr. Ring, one of the prosecutors, who had seen the prisoner write, proved that the whole of the letters produced were in the prisoner's handwriting.

Numerous witnesses were examined in proof of the facts stated, and other similar letters were put in evidence; and Dr. Rowland was also examined, and proved that the prisoner had actually attended at St. George's Hospital, complaining of great pain in his arm; but Dr. Rowland had great doubts at the time as to the genuineness of the case, and marked the entry in the hospital books with a query. It was part of the prisoner's adroitness to attend at the hospital so as to satisfy inquiries made by his intended victims; for, when he attended, he at the same time wrote letters to different parties, applying for compensation for alleged injuries, stating that he was then attending at St. George's Hospital with respect to the same, where inquiries might be made, and the prisoner appeared to display such cunning throughout these fraudulent transactions, that respectable builders were naturally taken off their guard, and were duped.

Mr. Harris made an ineffectual attempt at a defence, and the jury immediately found the prisoner guilty.

Mr. Montague Williams stated to the Court that it appeared, from inquiries made, that the prisoner, some years ago, had met with an accident to his arm, and that by rubbing and torturing the old wound he could make his arm appear injured, and had, in fact, for a length of time past been fraudulently trading upon the old injury, and victimising the public, and builders more especially.

The Judge, in passing sentence, said the prisoner had carried on these frauds with great artifice, and the sentence of the Court upon him was penal servitude for five years.

WEDNESBURY TOWN HALL COMPETITION.

SIR,—In your issue of the 12th instant it is objected that one of the firm of Loxton, Brothers (the successful competitors), was a member of the selecting committee.

Will Mr. Samuel Loxton, a member of the Local Board, answer for himself, and state whether he was or was not present at the committee meetings held to select the three premiated designs? If he was present, and not acting as one of the selecting committee, by what right and for what purpose was he there? Mr. Loxton's reply will, of course, satisfy any doubt that may still exist in the minds of many of the other competitors. AN INQUIRER.

SEWERS NOT RATEABLE.

THE METROPOLITAN BOARD OF WORKS, APPELLANTS,
v. THE PARISH OF WEST HAM, RESPONDENTS.

This was a poor-rate appeal case, Court of Queen's Bench Westminster, before Mr. Justice Mellor, which raised the question whether sewers are rateable. The rate was made by the parish of West Ham on that portion of the sewers constructed by the Board, which lay within that parish, with the embankment belonging to it, together with some buildings pertaining to the works for raising the sewage. The parish, as to the latter, relied on the recent Greenwich case, in which the sewage works, consisting of houses, sheds, and engines, in that parish, were held rateable; and as to the sewers, it was urged that the land would be of value if the sewers were removed. On the other side, that case was distinguished on the ground of the present value of the buildings, &c.

The Court, after a full argument, determined that the sewer and the embankment belonging to it were not rateable, as being of no present possible value. No one would at this moment give anything for the sewers or the embankment, and the Board could make no profit by them; therefore there was no rateable value, at all events, as to the land covered by the sewers and the embankment. It might be that there was some appearance of inconsistency in holding the buildings containing the pumping-engines as rateable; but on the whole there appeared to be a distinction between the two cases, and therefore, in accordance with the former case, the buildings would be rateable, though not the sewers. Judgment for the appellants as to the sewers; rate upheld as to the buildings.

TENDER FOR THE SUPPLY OF GLASS. CASES AND PLATE-GLASS TO BE USED AT THE INTERNATIONAL EXHIBITION OF 1871.

SIR,—With reference to the letter from Mr. John Drew, on the subject of his tender for the above, which appeared in your impression of the 12th, I beg to inform you that although it is true that Mr. Drew's tender of 1,725*l.* 15*s.* included "not only the frames, but also the plate-glass and glazing," yet the same remark applies to all the other firms tendering, and the alteration would not affect the question of the relative amounts of their tenders.

The tenders should have been stated to be for "cases and frames complete, including glazing."

HENRY D. SCOTT, Lieut.-Col. R.E., Secretary.

PROVINCIAL.

Wareham.—The new town-hall and corn-exchange have been opened. In the outset the architectural duties were undertaken by Mr. G. R. Crickmay, of Weymouth, who has designed and carried out the construction of many public buildings in the same county; and with Messrs. Beer, Hobbs, & Best, of Wareham, was completed a contract for the work, according to Mr. Crickmay's plans and specifications, at the estimated cost of 1,332*l.* Mr. Charles Card was appointed clerk of the works. The total expenditure, including all the extras and incidental expenses which will be involved in the work, is now set down by the committee at 1,829*l.*, towards which 500*l.* have been borrowed. There remains a deficiency of about 100*l.* The building is situated at the corner of North and East streets. The front wall in each street is built with red bricks and Bath stone. The high-pitched roofs, springing from a stone corbelled cornice, are covered with green slates. A clock-turret, corbelled out at the angle formed by the two fronts, with moulded and enriched oak hoods above the main cornice, supported on stone-corbelled shafts protecting the two dial faces, with open framing for bell, and a high and tapering roof, forms a conspicuous and picturesque feature. Nearly the whole of the ground-floor is occupied by the corn-exchange, with entrance from North-street. A second entrance from East-street, opening into a lobby, will give access by a stone staircase to the suite of rooms on the first floor arranged as a town-hall, occupying the east front, a magistrates' room, and a large reading-room. The style of architecture adopted is Gothic.

CHURCH-BUILDING NEWS.

Walton.—A new church here has been consecrated. It has been erected on the site and foundations of St. Peter's Walton, near Clevedon, a church which had been in ruins for generations. The work was begun about eighteen months ago; and, in excavating the foundations of the nave and chancel, the old walls were traced and built upon. It was ascertained that the chancel belonged to the thirteenth-century style, while the nave was of the fifteenth century, and in the rebuilding the styles have been followed as before, so that the nave is a reproduction of the peculiar Somersetshire style of the fifteenth century, the chancel being of the lancet build, a couple of centuries older. The north aisle is divided from the nave by arches. The chancel has a chapel on the north side, forming an organ-chamber and vestry. The chancel roof is vaulted, painted blue, and ornamented with stars. The east window is a lofty triplet, with shafts of Purbeck marble, filled in with painted glass representing a variety of subjects designed by the rector of the church, the Rev. R. W. Hautenville. A considerable quantity of French stained glass of the thirteenth century has been used in this window. At the side of the chancel are two stained-glass windows, in memory of the late Rev. C. L. Cornish, vicar of Compton Dando, and whose remains lie in the churchyard. The floors of the aisle and nave are paved with Godwin's tiles. The outside of the building is of local stone, the inside arches and dressings being formed of alternate courses of Doulting and Bath stone. The inside of the building is lined entirely with magnesian limestone. The place is filled with open and free benches to accommodate about 300, and the total cost has been about 3,000*l.* The architect was Mr. J. Norton, of London; the builder, Mr. R. Newton, of Wraxall. The general carving was done by Mr. Margetson, of Bristol; and the figure carving by Mr. Bolton, of Cheltenham.

Hastings and St. Leonards.—The restoration of All Saints' Church has been carried out under

the advice of Mr. Butterfield, of London. Nothing but the shell of the former building remains. The dilapidated exterior was first taken in hand, by Messrs. Avis & Roe, of Silverhill, the contractors. It is, however, in the interior that the restoration has been most complete. The woodwork, tiling, and glass are new. In the chancel, the fittings, stalls, reading-desks, &c., are of oak wainscoting and walnut. The old chancel pews give place to the arrangement of putting the choir there. The floor of the communion is laid with Minton's tiles; and Maw's tesselated tiles are used in other parts of the flooring. The most noticeable change in the nave and aisles is the substitution of open seats for high pews. The font is removed some distance westward, nearer the tower. In relaying the floor at a lower level, opportunity was taken to fit in pipes for a system of heating by hot-water coil. Messrs. Alderton & Shrewsbury executed this part of the work. The main pipes to light the church with gas, have also been laid in. The ceiling of the nave has been removed, leaving the time-stained timbers exposed to view. The organ is placed at the east end of the south aisle. A new instrument ought to be added, at an early date. The belfry walls have now an even plaster surface; and the old groined roof has been brought out. The inconvenient vestry has been removed from its old corner; and a new vestry-room has been built outside the church, on the north side of the chancel.

Welham.—The works of repair and restoration at the church carried out during the last two years, having been completed, the re-opening has taken place. The chancel of the church has been restored in the Decorated style. The old nave roof, which was rotten, and of the date of the reign of Henry VII., has been removed, and an open-timbered roof substituted. The whole of the interior walls, which were covered with stucco and whitewash, have been repaired and painted. The old square pews have been removed, and new open seats of pitch pine substituted. The chancel floor has been paved with Whetstone's tiles, and the nave floor relaid with stone and Cranoe Keel Quarry tiles. The church is warmed by a Gill stove, supplied by Messrs. Hunt & Pickering, of Leicester. Stained glass has been added to the windows, and the east window restored.

Coningsby (*Lincolnshire*).—The restoration of this church is to be commenced immediately, under the supervision of Messrs. Hine & Son, Nottingham, architects. The builder is Mr. R. Young, of Lincoln, whose tender, 1,640*l.*, is accepted for the work.

Over (*near Winsford*).—St. Chad's Church, Over, has been re-opened for divine service. The fabric of this parish church was, in the spring of 1868, examined by Mr. S. S. Teulon, architect, and he found the roof so much decayed as to be positively unsafe; so much so, that if any weight of snow had lodged upon it in the winter, the probability was that it would have given way. The church itself was disfigured by a low flat ceiling, heavy unsightly galleries, and by pews not only wasteful of space, but unsuitable for the proper observance of divine worship. The tower entrance at the west end of the church was blocked up, and entirely hidden from view by a vestry on the ground-floor, a gallery containing an organ, and above that a ringing-loft. The walls and pillars of the church were thickly coated with whitewash, and, though some of the windows had been restored, others were very much dilapidated. Now, however, through the liberality of the parishioners and their friends, this state of things has been entirely altered. The roof has been taken off and replaced by an open timber one, the rafters and beams being of polished oak. The galleries have been entirely removed, and the western arch and doorway have been opened. The walls have been cleared of the whitewash, and the red standstone of which the church is built is now revealed. Open varnished deal seats have been substituted for the old-fashioned pews, mostly free. In the south aisle is a new chancel organ by Bevington & Sons, of London, at a cost of 151*l.* The choir and chancel have been laid with encaustic tiles. The repairs to the external fabric are but few and insignificant. Where stone was found in bad condition it has been replaced, and some portions have been redressed. The restoration of the chancel was undertaken by the Ecclesiastical Commissioners, who placed the work in the hands of Mr. Ewan Christian, architect; and the remaindar of the alterations have been defrayed by voluntary subscriptions; the architect being Mr. Teulon, and the contractor Mr. R. Beckett, of Hartford. About 1,600*l.* have already been expended, and 500*l.* more are required to complete the restoration of the north aisle, and for other alterations.

Nether Swell.—On the festival of SS. Simon and Jude a new chancel to the church of Nether Swell was consecrated by the bishop of this diocese. For the better accommodation of the increased population, eighteen years ago a new aisle, larger than the old church, was added on the north side of the nave, and the old church was re-pewed and repaired. To this new aisle has been annexed the new chancel, of which the chief promoter has been Mr. Alfred Sartoris, who has lately bought an estate, and built, in the Elizabethan style, a spacious mansion. The new chancel is Early English, and was designed by Mr. Christian, in harmony with the new aisle.

Hurworth.—All Saints' Church, Hurworth, has been reopened for divine service. The modern shallow chancel has been completely pulled down, and substituted by a chancel of three bays, erected with aisles on each side of two bays; that on the south side being occupied by the organ and vestry, and that on the north being fitted with seats. These aisles are separated from the chancel by clustered pillars, with boldly moulded bases and carved caps and support, moulded arches of three orders enclosed within label moulds with carved terminations. The arches, opening from the chancel and aisles into the nave and transepts, are similarly moulded, the carved capitals being supported by pillars of polished granite from Shap Fell, with cobbled-out bases of polished stone. The chancel roof is of the curved brace form, open to the apex, the timbers being all of pitch pine, moulded, covered by two thicknesses of boarding, with thick felt between, on which green Westmoreland slating is laid. The curved braces are supported by corbels with carved caps, moulded bases and shafts, also of Shap granite. The windows are all filled with geometrical tracery, and have moulded jambs and mullions, with small caps and bases introduced. The east window, which has been erected to the memory of the late rector by Mrs. Williamson, his widow, is filled with stained glass by Mr. Wailes, of Newcastle. Under the east window is a reredos the tracery moulded in Caen stone, supported by shafts of Irish marble, and the panels are filled with mosaic of Venetian enamel, executed by Salviati & Co., of Venice and London, from cartoons by the architect. The principal panels contain emblems of the Holy Trinity, the Holy Spirit, the Pelican and Agnus Dei, emblems of our Saviour, and emblems of the four Evangelists; the minor panels contain foliage of the Byzantine type peculiar to Venetian mosaic. A large part of the ground is of gold glass, and when the sun shines on it—but especially when the gas is lighted at night—the effect comes out. The window on the south of the sanctuary is the gift of Mr. Wrightson, and that on the north is from Miss Bales. The floor of the chancel is laid with mosaic and encaustic tiles. Passing under the chancel arch, we find the nave in keeping, but of a plainer character than the chancel. The ancient pillars have been stripped of their plaster, and restored. A new roof has been placed on the nave, of the original high pitch. The whole of the aisle floors are paved with mosaic tiles. All the old square high-backed pews are replaced by open stalls, with low slanting backs, and the windows have been all re-glazed with tinted glass, having coloured margins. The entrance has been restored to its original and proper place on the south side, the modern west door having been walled up, a window opened out above it, and the tower formed into a baptistery opening into the church by an arch of stone. The church is warmed by Haden's warm-air apparatus, assisted by one of Lewis's patent warm-air chamber-grates in the vestry. The whole of the works have been designed and carried out under the superintendence of Mr. Pritchett, of Darlington. The general contractor was Mr. G. Gradon, of Durham, who sublet the masonry to Mr. Foster, of that city; the slating to Messrs. Atkinson, of Darlington; the plumbing to Mr. Laidler, of Durham; the glazing to Mr. Wilson, of Leeds; the varnishing and colouring to Mr. Dryden, of Darlington. The artistic metal-work has been executed by Mr. Dovey, of Manchester; the mosaic flooring by Messrs. Maw & Co., of Broseley; and the carving by Messrs. Burtstall & Taylor, of Leeds.

Houghton Conquest.—The Church of All Saints, Houghton Conquest, to the east of the high road from Bedford to Ampthill, has been renovated under the direction of Mr. G. G. Scott. The works executed comprise the renovation of the oak roofs of the nave and aisles, 800 ft. of oak being required for this; the lead being recast and relaid in the best manner. The walls and buttresses have been underpinned, and where defective, rebuilt,—local sandstone, from the Dowager Countess Cowper's estate, being used for the walling, and Arcaster stone for the windows, doorways, and other dressings of the windows, all of which were partly built up; some have been entirely repaired and reglazed, some interesting fragments of stained glass being recovered. All the piers of the arcade have been underpinned. The whole area has been lowered to its original level, and reseated with oak fittings; the ancient open benches being repaired and refixed in the nave, those in the aisles being new, but made from the same design. The floors are repaved with tiles, the ancient monumental slabs being relaid in their original positions. The walls and stonework having been cleansed from the whitewash, many mural paintings were found. Over the chancel-arch is a Vesica Piscis,—Our Saviour is represented showing the sacred wounds,—the world and a rainbow under him; on his right an angel holding a cross and spear; on his left the same with pincers and nails. Over the north door is a figure of St. Christopher, 16 ft. high, crossing the water with the infant Saviour. In the south aisle is a representation of St. George and the Dragon, also many legends and texts, and the Belief. The porch, which is very dilapidated, has been rebuilt; a new oak roof, enriched with carving, has been fixed; the gable contains an elaborate niche, and the strings, labels, &c., carved. The modern fir doors have given place to oak, with artistic ironwork, and a wrought-iron screen has been placed in the tower archway. The organ is entirely new, and erected by Hill & Co., of London, under the direction of Mr. C. L. Higgins, of Turvey Abbey. The chancel has undergone a complete renovation; the oak roof is new, and in harmony with the east window, which latter had for years been blocked with brickwork, but has now been opened out, and the mullions and tracery restored; the side windows, which had suffered by similar treatment, have also been restored, and contain some curious fragments of ancient glass hidden for many years. The stalls and fittings have been reconstructed; the carving of the ends is interesting. The ancient screen, which had been greatly mutilated, has been retained and restored. The clerk of the works was Mr. T. Leigh, of London; the contractor, Mr. J. Fast, of Melton Mowbray. The carving was executed by Mr. S. Ruddock, of Pimlico, and the decoration of the screen by Messrs. Burlison & Grylls. The whole of the cost will exceed 3,000*l.* The addition of a considerable new portion on the north-east of the churchyard has been made and consecrated, the land having been given for the purpose by the Rev. Lord John Thynne, of Haynes Park.

Bramfield. — The church of Bramfield, or Braintfield, a parish historically interesting as the first charge of Thomas A'Becket, has been reopened for divine service, after having been closed, for restoration, during ten weeks. An addition has been built on the north side, forming an organ-chamber and vestry, and in the interior the gallery has been removed, and the old pews replaced by free and open seats of simple design. The chancel has been raised, and paved with encaustic tiles, as also the octagon room under the tower, which has been made a baptistery and furnished with a font. The whole cost of these and other improvements is estimated at 500*l.* The works have been carried out by Mr. Rayment, of Hertford, under the direction of Mr. C. B. Trollope, architect.

Swepstone.—The church, after the rebuilding of the chancel at the sole expense of the rector, the Rev. W. C. Hodgson, and the restoration of the nave and aisles by public subscription, has been opened for divine service. The church consists of chancel, nave, north and south aisles, tower, and south porch. The chancel is rebuilt in the style of the north aisle, about the year 1350. The tower was rebuilt in 1842, and the nave of the church seated with the present pews and benches. The rest of the church was left in a sad state of decay, and its restoration could not have been much longer delayed. When the rector had rebuilt the chancel, the parishioners, in vestry, willingly agreed that the restoration of the nave should be at once taken in hand

The chancel, which is fitted with temporary stalls, is separated from the nave by a low screen of Bath stone. There are encaustic tile pavements in the chancel, from Whetstone & Son, of Coalville. The east window, which is a memorial to the last rector and his wife, by the members of their family, consists of three lights, with two subjects in each light, the filling-up being in its character geometric. The centre subjects are the Resurrection and the Crucifixion. The subjects of the side lights are incidents in the life of St. Peter, to whom the church is dedicated. The window is the work of a young artist at Hull, of the name of Howe. The roof is of a very high pitch, of wagon-shape inside; the deal boarding is left for future painting. The walls are of ashlar; and there is a Gill stove, the flue of which passes underground along the nave to a flue in the tower. The organ, built by Gray & Davison, at a cost of 250*l*., occupies a recess on the north side of the chancel, the front being corbelled over the player's head, and is highly decorated. The frame is of oak, left in its natural state.

SCHOOL-BUILDING NEWS.

West Bromwich.—The new school in connexion with St. Michael's Roman Catholic Church has been opened. The school has been erected upon the site of the old one, at a cost of 500*l*., to be raised entirely by voluntary contributions, and will accommodate 200 children—nearly four times the number which the old building was capable of accommodating. It is a gable-ended building, with a plain exterior, constructed in the Early English style of architecture, of red, blue, and white bricks. There is a triple lancet window in the front gable, with stone dressings and diaper brickwork, and there are windows along one side of the building. The roof internally is of open timber, stained and varnished; and the walls, up to the level of the windows, are lined with glazed white bricks.

Maidstone.—The foundation-stone of the new Grammar School, which is to be erected on the Tonbridge-road, has been laid by Sir John Lubbock. The situation of the present school in Earl-street, a very unpleasant if not unhealthy neighbourhood, has for many years been regretted, and a desire has long been evinced to remove it to a more convenient site. The liberality of Mr. Peale led to this being accomplished, and the 1,200*l*. with which he headed the list was followed up by subscriptions to the amount of about 1,500*l*. The design for the new building was provided by Mr. E. W. Stephens. The style is late Gothic. The principal school-room will be 50 ft. by 25 ft., and will seat 180 scholars, but in reality has floor space for 150. Adjoining the school-room, and approached by the corridor, is a class-room, 19 ft. by 15 ft., which will accommodate a class of thirty-four scholars; and in addition to this there is another class-room, 30 ft. by 20 ft., which affords floor space for a further number of seventy-five boys. This latter room may be used also as a dining-hall for resident boys and day scholars. Besides this accommodation for boys, there is a large entrance lobby, a convenient lavatory, boarders' staircase, separate rooms for books, hats, and boots, and several other conveniences. The whole of the scholastic portion of the building is cut off from the master's residence. In the upper portion of the buildings, consisting of two floors, there is accommodation for twenty-four boarders, one room for under master, eight rooms for the master's own use, two infirmary wards for sick pupils, and a nurse's room. There is to be a bath-room on each floor, with lavatories and clothes store, &c. The whole extent of ground purchased by the trustees contains an area of 3¼ acres; the school buildings, and master's house, and garden taking about three quarters of an acre. The playground is 1 acre, and the cricket-ground 1¼ acre in extent.

Ardwick.—The new schools in connexion with St. Thomas's Church, Ardwick, have been opened by the Bishop of Manchester. They will accommodate 550 children—300 infants and 250 boys; have been built at a cost, including the fittings and site, of 4,000*l*., and will comprise two school-rooms—the lower for the infants and the upper for the boys. The building is of brick, with stone facing, in the Gothic style of architecture. The rooms are of more than ordinary dimensions, and are well lighted and ventilated. Messrs. Royle & Bennett, of Manchester, were the architects, and Messrs. Clay & Son, of Audenshaw, the builders.

Upper Norwood.—New schools in connexion with St. Paul's Church, Upper Norwood, recently erected in Anerley-road, near the Crystal Palace, have been opened. The building, which will accommodate 250 children, consists of a school-room 51 ft. by 25 ft., two class-rooms, teacher's residence, and a soup-kitchen. The style is Gothic: malm facings, relieved with stone dressings, and red brick arches and bands. The school has an open-timbered roof, the height being 15 ft. to wall-plate. The architect is Mr. George Elkington, under whose superintendence the works have been executed by Mr. Hollidge, contractor, at an outlay of 1,200*l*., exclusive of site.

Red Hill (Surrey).—The opening of a school-room in the Brighton-road, Red Hill, Surrey, has recently taken place. It has been erected from the designs of Mr. John R. Collett, architect. Mr. James Hall, of Sutton, was the contractor; and the ornamental ironwork was executed by Mr. Anderson.

Felsted.—The new school-rooms which have just been erected in connexion with the Felsted Congregational Chapel, at the cost of about 325*l*. have been opened. The building, which is of timber construction, on concrete blocks, stands in the burial ground, and is contiguous to the chapel and minister's house. The main room is 55 ft. by 22 ft., with infant school-room 16 ft. by 15 ft., and two class-rooms, providing in all accommodation for about 300 children. The buildings are plain and unpretending, and have been erected by Messrs. Smith & Holland, builders, of Great Leighs, under the direction of Mr. Charles Pertwee, architect, Chelmsford.

Worcester.—A new infants' school has been opened in St. John's. The edifice, which has been erected under the superintendence of Mr. Perkins, architect of the cathedral, and Mr. Warner, builder, of Malvern Link, has been constructed upon a healthy site on the right hand side of the Bromyard-road, just beyond the toll-gate, and is therefore in close contiguity with the church itself. There is ample space around it in the shape of a playground, skirted by a dwarf wall. The school presents to the front a pointed gable with wings. The principal school-room is co-extensive with the frontage, namely, 48 ft., and the entrance is by a porch at the lower end. At the rear of this room there are two class-rooms, the dimensions of which are 20 ft. by 14 ft., the intermediate space being covered over and made available for a playground in wet weather. The height from the floor to the wall-plate is 14 ft., and to the top of the pointed roof in the centre about 35 ft.; behind the porch, which is 9 ft. by 7 ft., is a book-room, 7 ft. by 6 ft. The building is of brick, with white stone dressings.

Westerdale, Yorkshire.—A new school is to be erected in this parish. The designs have been prepared by Mr. H. Perkin, of Leeds, architect. The school will be of stone, with open-timbered roof, and will accommodate fifty children.

Matlock.—The new National Schools, intended for the use of the Sunday and day scholars in connexion with the parish church, have been opened. The estimated cost of their erection is 530*l*. of which the larger portion has already been raised. The schools are capable of affording accommodation for 200 children. The architects were Messrs. Hine & Son, of Nottingham; and the builder Mr. W. Statham, of Matlock.

Walkley.—The corner stone of the St. Mary's National Schools, Walkley, has been laid. The schools, the site of which adjoins the church, will be built in the shape of the letter H, and in the Gothic style of architecture. The boys' school, at the one end, will be 45 ft. 6 in. by 20 ft.; and the infants' school, at the other end, will be 48 ft. by 20 ft. In the centre will be the girls' school, 38 ft. by 20 ft., and a class-room, 12 ft. by 20 ft., with entrance-porches, passage, &c. The height of the schools inside will be about 26 ft. Mr. Thomas A. Wilson is the architect, and Mr. John Wilson the contractor. The contract for the erection of the schools amounted to a little over 1,500*l*. The boys' school will accommodate 100, the girls' school 80, and the infants' school 120 scholars.

The Proposed New Harbour, Folkestone.—The plans for the proposed harbour are on view at the townhall. Two schemes are submitted, one of which is estimated to cost 150,000*l*. and the other 200,000*l*. The latter has an additional length of 200 ft.

Miscellanea.

Want of Elasticity in Portland Cement. Speaking of the repeated failure of large civil engineering works, such as breakwaters, docks, walls, &c., due indirectly, beyond question, to the want of elasticity—in other words, to the brittleness—of cement, the *Engineer* says,—As an illustration of the nature of strains to which works of this kind are submitted, we may cite the case of the splendid breakwater at Holyhead, now fast approaching completion. Under the full force of a heavy westerly gale rolling in a tremendous sea, the work rocks and vibrates to an extent which can only be realised by those who have stood on the wall inside the parapet at the time; and in direct confirmation of what we have said, we may state that mortar made of good Aberthaw lime has been found to sustain the shocks of the wind and the sea better than Portland cement of the best quality, apparently because the lime mortar possesses more elasticity than the cement. Other instances might be cited, all tending to prove that however suitable Portland cement is for such works as the main sewers of the metropolis, the piers of a bridge, or the Thames Embankment, it is not uniformly the best material that can be used for engine foundations, breakwaters, or other structures exposed to violent dynamical strains. Whether it is or is not possible to impart elasticity to Portland cement remains to be seen. It is certain that unless it possesses some elasticity, it is unlike all other known materials; but if it possesses some elasticity, different samples may possess more or less of the quality. Engineers have now to find out what kind of cement possesses most elasticity, and how far a high tensile strength and great elasticity are compatible with each other.

Arbitration.—The case of Brazier *v.* Askew, where the plaintiff, Mr. Wm. Brazier, claimed compensation for damage to property at Parkgate, Sheffield, alleged to have been caused by the coal-mining operations of Messrs. T. and H. Askew, referred to Mr. J. E. Barker, barrister, was heard by him at Rotherham, and occupied three days. The principal witnesses for the plaintiff were Mr. Dobb, architect, Rotherham; Mr. G. W. Wilson, architect, Sheffield; Mr. P. Cooper, colliery manager, The Holmes; and Mr. Wilson, of Darfield. Solicitor, Mr. Harrop, of Rotherham. The case for the defendants was that the damage was not the result of the coal getting, but of the defective construction of the property. The witnesses for the defendants were Mr. W. Blackmoor, architect, Rotherham; Mr. C. J. Innocent, architect, Sheffield; Mr. B. Sellars, coal-owner, The Haigh; Mr. Beecher, mining engineer, Thorncliffe; and Mr. B. Sellars, jun., mining engineer. Solicitor, Mr. Whitfield, of Rotherham. After taking time to consider the evidence, and having viewed the premises, the arbitrator has made his award in favour of the defendants, all costs to be paid by the plaintiff.

Rain.—In a lecture at Norwich last week Mr. James Glaisher, F.R.S., said:—"The whole of the rain had its origin and fall 800 ft. from the earth. Desiring to discover the influence of the moon on the elements, he took observations, and discovered, after a long series of observations, that on the 9th day of the moon there was much the most rain, and that on the first and last week of the moon there was the least amount. He had taken account from 1815 to 1869 of every day on which there had been an inch of rainfall, and he had found that on July 26th, 1867, the rainfall amounted to 3 in. 7-10ths—the largest amount that had fallen in one day at the Royal Observatory. From careful observation he had made he had no doubt that the moon did exercise an influence upon rain. Another investigation that he made was as to the time of day that rain fell most, and he had found that the largest quantity of rain fell at about four o'clock in the afternoon.

Billingsgate and Leadenhall Markets.—In accordance with the decision of the Court of Common Council, on Thursday last, to enlarge and improve these important City markets, Mr. Corrie, the Remembrancer, has given notice on behalf of the corporation of their intention to apply to Parliament for authority to carry out the necessary works. In the case of Leadenhall Market the sale of meat, skins, and hides is sought to be prohibited, and the land so rendered useless in that direction will be utilised in the enlargement of the poultry market.

Australian Meat.—The cheap food question, in its connexion with the importation of meat from Australia, so largely dealt with last winter, has again been opened up at the Norton Folgate agency for colonial produce, in a meeting of medical officers of health for different parts of London, who were called upon to pronounce an opinion with regard to the wholesome character of the food. Among those present were Dr. Lankester and Dr. Hardwicke, the coroner and deputy-coroner, Dr. Aldis, Dr. Septimus Gibbon, Dr. Letheby, the Rev. Septimus Hansard, and many other gentlemen well known as taking an interest in the social progress of the people. The meats were served to the company by Mr. Tallerman, in the condition in which they are being served to the people in "Penny Dinners," namely, cooked with vegetables or with barley, as mutton-broth prepared Scotch fashion, pea-soup, rice-soup, and the *entrées* were mince collops, haricot mutton, fried ham, sausages, meat and rice, meat pies and puddings. Many of these dishes were retailed at 2d., and some at a penny, affording a good wholesome dinner, with dining accommodation in a spacious hall, at a very low price. The highest price charged for a dinner in the reserved seats, the dinner consisting of soup, *entrée*, vegetable, and bread, is 5d., and six dinners are supplied on consecutive days for an abatement of 3d. on the week. The dinners as served were pronounced to be excellent, and the large company voted Mr. Tallerman thanks for his efforts. Complaints have been made that some of the salted meats are unnecessarily salt. This seems to be the case with spiced and rolled beef and mutton, which, however, are very tasty, though, of course, several months old, and give a good relish to fresher forms of food.

Exhibition for the Distressed Peasantry of France. — An exhibition of pictures is being formed, and is about to be opened, at the French Gallery, for the benefit of the peasantry of France, described as being in a fearful state of distress. Baron Gudin, the eminent French marine painter, has been especially active in arranging the undertaking; and amongst the artists who have already promised to contribute to the exhibition may be mentioned Messrs H. B. W. Davis; J. L. Jérôme; A. Elmore, R.A.; P. H. Calderon, R.A.; W. P. Frith, R.A.; R. Fleury; C. F. Daubigny; E. Long; G. P. Boyce; T. S. Cooper, R.A.; J. B. Burgess; H. Hardy; E. Crowe; A. Gilbert; H. Dawson; Theodore Weber; J. E. Saintin; A. Perrault; Baron Gudin; L. Escosura; F. Heilbuth; G. Ruard; A. Yvon; H. Delissard; W. Q. Orchardson, A.R.A.; A. Schreyer; H. Schlessinger; Birket Foster; A. Bouvier; I. Webb; F. W. Hulme; G. F. Tenniswood; Lady Cadogan; J. D. Watson; J. R. Dicksee; J. Burr; A. Ruinart; A. Tadema; Ludovici; E. Armitage, A.R.A. The presentation of pictures, drawings, and other works of art is invited.

The New Mint.—There are signs at last that the new Mint, as well as the new Law Courts, elsewhere noticed, are to be proceeded with. Parliament will be asked next session to authorise the erection of a new Mint, on a site facing the Embankment. The site fixed on is on the City side of the Temple-gardens, in a part of the Embankment which greatly needs adornment. The first thing seen on entering the Embankment road from the City is the City Gas Works, the thing most out of place in all this incongruous metropolis. The site chosen for the new mint is next to the gas-works. It is now covered with wharfs and buildings which are fit company for their smoky neighbour. How a new public building will look with the smoke of the retorts beating against it, and the huge gas reservoirs threatening it with destruction, it is impossible to guess. It is to be hoped the selection of the site indicates the removal of the gas-works.

Royal Commission on Pollution of Rivers.—Major-General Sir William Denison, K.C.B., Dr. Edward Frankland, F.R.S., Mr. John Chalmers Morton, and Mr. S. J. Smith (secretary), having completed their inquiries and investigations into the river basins of Scotland polluted by town sewage and refuse from manufactories; also the basins of the Aire and Calder, Lower Avon, Windrush, and the upper parts of the Severn, river basins extensively polluted by woollen manufactures and the processes connected therewith, met at No. 1, Park-prospect, Westminster, for the purpose of considering their reports.

Paving by a Driver.—Mr. Charles Pinnington, of 9, St. James's-terrace, Caledonian-road, who states that he has "been employed for the last forty years in driving a conveyance through London and the suburbs, averaging 70 miles a day," and has much meditated on the defects of various modes of paving, has at last taken out Royal Letters Patent for a new mode, which consists of laying granite or other stone blocks on wood in two transverse layers, bedded on a mixture of sawdust and unboiled coal-tar, resting on the sand or other subsoil; so forming an elastic basis for the stone blocks, through which boiled or boiling tar is to be poured, followed up by sand, thus rendering the whole water-proof, to which a coating of tar over the wood before it is laid contributes. Noise, he considers, would be diminished, the granite saved, and the paving be both cheap and lasting, as well as merciful to his beloved horses.

Courts of Justice.—Notice is given that application is intended to be made to Parliament in the ensuing session for an Act to authorise the Commissioners of her Majesty's Works and Public Buildings to acquire and take, by compulsion or agreement, additional property, for the site of the Courts of Justice, in the parish of St. Clement Danes, and for other purposes connected with the proposed Courts of Justice. The large block of buildings which the commissioners propose to take is that which commences at Clement's-inn gateway on the east, extending to Dane's-inn on the west. Northward, the block is bounded by Clement's-inn Hall, and southward by the Strand. It contains, in addition to the hall, several large houses, amongst others, Carr's Hotel, Tuxford's printing-office, the Vestry-hall, and a long row of houses in Clement's-inn. It is not stated what is the precise object to which the new site is to be applied. There are no signs of the Courts being commenced.

Progress of Tramways.—The Metropolitan Street Tramways Company intend applying next month to the Board of Trade for provisional orders for extensions of their lines, including an extension from the Kennington Park-road to the Borough. In Princes-street, City, on the east or Bank of England side, a line is proposed throughout the entire length of the street; also on the south side of Cannon-street, between Dowgate-hill and College-hill. A line is also proposed along the Southwark Bridge-road to Queen-street, City, between Upper Thames-street and Cannon-street. Mr. Jackson, who has made some suggestions as to the construction of tramways, now advocates the making of a new road from the corner of Mansion House-street, in the Kennington Park-road, to St. George's-circus, in the Blackfriars-road.

Fall of a Tower. — The tower of the church of East Rudham, which had long been in a dilapidated state, has given way, a great part of the west and north walls falling to the ground, the lower portion being used as a vestry: the *débris* covered up all therein,—parish chest, register, lamps, tables, &c. Fortunately, however, the fall did not occur during divine service. The bells were left hanging with no means of access, the circular staircase having fallen with the rest. Being uninjured and valuable, however, an effort was made to save them, and they were safely landed by Mr. R. M. Lane, of this place, engineer. The church, which is in the Decorated style, and dates about the end of the thirteenth century, is also considered in a dangerous state, and divine service has been discontinued therein.

Electro-Telegraphic Progress.—Sir Chas. Wheatstone has just added to his many electrical inventions the completion of a printing instrument. This resembles a piano, having a key-board of twenty-five notes, each answering to a letter in the alphabet, several of which can be used for stops and numbers. The most frequently-occurring letters are situated towards the centre, so that an operator need rarely move his hands from one position. Great speed is thus obtained; and, if necessary, a printed copy of the forwarded message can be had by the sender of a message.

Dwellings for the Working Classes, Pimlico.—"Coleshill Buildings," in Ebury-street, erected for the Improved Industrial Dwellings Company, were opened on the 18th inst. by the Duke of Cambridge, in presence of a distinguished company. We will give some particulars of the buildings in our next number.

Wolverhampton New Town - Hall: Dinner to the Workmen.—The workmen employed under Mr. Horsman, the contractor in the erection of the Wolverhampton New Town-Hall, in North-street, having succeeded in completing the timber supports for the roofing in of the main building, the event was celebrated with the usual ceremony of hoisting a Royal standard on the summit of the dome, followed in the afternoon by an excellent dinner, which was given by the Public Works Committees to the whole of the men employed on the work. The north wing of the new buildings (intended for the use of the police force) is already completed, and has been for some time past used by the officials of the corporation, and by the corporation committees. In the principal room, the mayor (as chairman of the Public Works Committee) presided, supported by Mr. Horsman, contractor, &c., and faced in the vice-chair by Mr. Whiston, clerk of the works.

Instruction in Science and Art for Women.—The course, or rather courses, of instruction in science and art for women, conducted in the Lecture Theatre of the South Kensington Museum, continue to be well attended. Professor Huxley, in his series of lectures in the elementary course, has had in his class upwards of 200 ladies. Having in his previous lectures physiographically described the rise and progress, so to speak, of the Thames and its basin under the action of rain and pluvial denudation, he proceeded to illustrate his subject still further by showing the effects both of pluvial and of marine denudation in the river's estuary, along the seashore, and outwards into the depths of the ocean. Professor Guthrie, in his advanced course of instruction, has also had fair audiences in more senses than one. He has been enlightening the ladies on the subject of heat, light, and other branches of physics.

The Leicester Industrial Provident Society.—This is a co-operative society, which began ten years since with almost nothing, and after the necessary time and difficulties of incubation, is now rising rapidly, and doing business to the extent of between 30,000*l.* and 40,000*l.* a year; and at the recent rate of progress, will, ere long, be doubled. It is entirely under the management of the working classes. The number of members in July, 1870, was 1,409; in October, 1870, it was 1,697; giving an increase of 288 members in three months. The society has eight branches in Leicester, besides the central stores. The members, and non-members, besides good articles of supply at cheap rates, for ready money, reap considerable profit otherwise from their connexion with the society.

The Strike in Edinburgh.—The Lord Provost of Edinburgh, who had consented to act as arbiter in the stonemasons' strike, gave his decision on Monday as follows:—"The Lord Provost, having carefully considered the statements submitted to him on Saturday last by the master masons and also by the men in their employment, is of opinion that the most equitable decision he can come to is to halve the difference between the parties, and he therefore so decides." The masters and men agreed to abide by his lordship's decision, and the strike has accordingly terminated. The men will now be paid at the rate of 6½d. per hour instead of 6d.

East London Museum.—It will be remembered that the Duke of Buckingham, during his tenure of office as Lord President of the Council, obtained the sanction of her Majesty's Government for establishing a museum in the east of London as a national institution, and he authorised the appropriation of part of the temporary structure at South Kensington to be made over as a skeleton for the new building. The Society of Arts made a donation of 100*l.* towards the same object. The building is now fast approaching completion, and will, it is believed, be opened in the course of next year.

Infirmary, Basford Union.—The guardians of this union have just completed their new erections, consisting of an infirmary for 131 beds; infectious ward, 10 beds; probationary and itch wards, porter's lodge, clothes stores, and some additions to the old premises. The infirmary is said to be provided with all modern and useful appliances for promoting the welfare of the patients and economising labour. The architect was Mr. S. J. Barber, of Eastwood, Notts; and the contractor Mr. G. Hopewell, of Basford.

The Improvement of Park-lane.—At the last meeting of the Metropolitan Board of Works, a letter from the Government Board of Works was read, informing the Board that a sum of 45,000*l.* had been placed in trustees' hands to aid in the widening of Park-lane, by Mrs. Brown, of Hertford-street, May Fair, on condition that the Metropolitan Board should adopt that course instead of opening out a new street through the gardens of Hamilton-place, thus destroying so much of Hyde Park. The Metropolitan Board rejected an amendment declining the offer, and deferred the matter to their Works and General Purposes Committee for consideration and report.

Arbitrators' Awards. — The question whether an arbitrator could alter his award after he had signed it, even in the case of a palpable mistake, has been raised in the case of Mordue *v.* Palmer, an appeal which was heard before the Lords Justices in London. In this case the arbitrator's clerk had omitted in the fair copy of the award the words relating to the costs of the reference which were in the original draft. Their lordships agreed that the result of the cases decided at law was, that when an arbitrator had signed a paper which on the face of it purported to be his award, he was *functus officio*, and could not make any alteration in it.

New Library and Museum at Brighton. A meeting of the East Sussex District of the South-eastern Branch of this society was made the occasion of inaugurating the new library and museum, recently constructed to the east of the hospital, after plans by Mr. Edmund Scott, a local architect. This building has an Italian elevation, and contains, besides two commodious rooms devoted to the above purposes, some contiguous offices, as dissecting-room, &c., which are necessary adjuncts to them.

Four Persons Suffocated by Gas.—In Moor Crescent-road, Leeds, owing to an escape of gas from the mains in the streets adjoining Dewsbury-road, Holbeck, four persons resident in two adjoining houses have been killed in their bedrooms, and two others were found almost dead. It appears that there had been something the matter with the mains in the street for a little time past, and it is supposed that the gas escaping from the main pipe had gone through the earth, and found an outlet in the houses of the unfortunate deceased.

The School Board.—More than 140 candidates have been nominated for the Metropolis School Board. The Board will consist of forty-nine members; so that there is, as nearly as possible, an average of three candidates for every seat. The list on which the voting will take place is, however, not quite settled yet, and some reduction in the number may be anticipated.

Northern Architectural Students' Society.—At the first business meeting of the winter session, held at the Literary and Philosophical Society's Rooms, Newcastle, Mr. Matthew Reed, jun., read an account of Ryton Church, county of Durham; and of Belsay Castle, county of Northumberland, descriptive of original sketches of those buildings submitted by him to the meeting.

Polytechnic Institution.—Professor Pepper's new entertainment, descriptive of the war and the destructive implements used in it, is alike interesting and instructive,—the best thing done at the Polytechnic for some time past. Including, as it does, some excellent pictorial and musical illustrations, with the national war-songs, of course, it holds the audience for a couple of hours without desire to move.

Indian Antiquities.—It is stated that General Cunningham, late of the Bombay Engineers, has been appointed Surveyor-General of the Archæological Survey of India, with orders to proceed to India immediately and organise on an extended scale the operations for the preservation of Indian architecture, which have been already initiated by the Government of India.

A Cottage Hospital for Devizes.—At a meeting held in Devizes, it has been resolved that it is advisable to establish a cottage hospital there. There was a full attendance, and donations and subscriptions to the extent of nearly 400*l.* were at once announced. A committee has been appointed.

Manchester and Salford Sanitary Association.—The opening address of the present winter's course of lectures under the auspices of this Association, has been delivered in the Hulme Townhall, by Mr. Thomas Turner, F.R.C.S. The subject was—"Human life in its physical and sanitary relations."

Knightsbridge Barracks.—We are glad to find that notice has been given that next session the Treasury will seek the requisite powers to remove the barracks from Knightsbridge, and a site for their re-erection in the parish of St. Margaret, Westminster, is named.

Institution of Surveyors.—At the next meeting, to be held on Monday evening, the 28th of November, Mr. E. Ryde will continue his paper of last session on "Parochial Assessments (Railways)."

The Tunnel through Mont Cenis.—The Mont Cenis Tunnel is advancing to completion. Next month is really expected to witness the virtual consummation of this work.

TENDERS.

For the finishings to six houses at Acton, for Messrs Hensman & Nicholson, solicitors. Messrs. W. Waymouth & Son, architects:—

Macey	£3,269	0	0
Merritt & Ashby	2,699	0	0
Foster	2,651	0	0
Preedy & Sons (accepted)	2,230	0	0

For alterations to three shops, for Mr. Kingbury, 95, Fulham-road:—

Taylor	£564	0	0
Ball	529	0	0
Carmody	499	0	0
Kelly, Bros.	473	0	0
D. Taylor (accepted)	424	0	0

For schoolroom for parish of Chaldon, Surrey. Mr. Richard Martin, architect. Quantities not supplied:—

Jarrett	£218	0	0
Barnes	205	0	0
Ward	194	0	0
Francis	192	10	0

For erection of house and shop for Mr. James Gutteridge, Coalville, near Whitwick, Leicester. Mr. J. Salisbury, architect:—

Mills	£536	10	0
Crane	514	0	0
Price	498	0	0
Hallam, jun.	496	0	0
Cox	302	2	4

For repairs and alterations, new conservatory, &c., at Bramley House, Bramley; also, new lodge; for Mr. A. Clarke. Mr. A. Peebles, architect:—

	Alterations, Repairs, New Conservatory, &c.	New Lodge.
Moon	£4,077	£411
Barnett & Whichelow	4,050	210
Henshaw	3,995	368
Nye	3,994	409
Scrivener & White	3,975	369
Newman & Mann	3,936	356
Wilson	3,769	414
Nightingale	3,710	382
Mitchell	3,578	398
Crabb & Vaughan	3,554	419
Moultrie	3,514	370
King & Sons	3,446	400
Ebbs & Sons	3,436	346
Longmire & Burge	3,434	356
M'Lachlan	3,383	363
Earle	3,384	395
Perkins	3,321	361
Nash & Co.	2,958	320

[Some of the above were too late.]

For Wellington College Sanatorium:—

Wheeler, Bros.	£990	0	0
Higgs	982	14	0
Woodroffe	950	0	0
Norris	948	0	0
Shepard	917	0	0
Nightingale	898	0	0
Clealand	685	0	0

For alterations and a new plate-glass front, &c., at the Gloster Arms Inn, Ship-street, Brighton. Mr. Geo. Tuppen, architect:—

Garrett	£215	0	0
Bowles	210	0	0
Dean	198	0	0
Lockyer	195	0	0
Lancaster	170	0	0

For the erection of a villa residence on the Clermont Estate, Brighton, for Mr. W. H. Hunt. Quantities supplied. Mr. Geo. Tuppen, architect:—

Patching & Son	£1,170	0	0
Barnes	1,147	0	0
Dancy	1,096	0	0
Newnham	1,089	0	0
Hall	1,037	0	0
Lancester	1,035	0	0
Stenning	1,028	0	0
Dean	1,014	0	0
Chessman & Co.	999	0	0
Holloway & Son	970	0	0
Lockyer	955	0	0
Miles (accepted)	850	0	0

For the erection of a Wesleyan Methodist Chapel, Horseferry-road, Westminster. Messrs. Wilson & Willcox, architects. Quantities supplied by Messrs. Corderoy & Co.:—

Bayes & Ramidge	£8,268	0	0
Carter & Son	7,625	0	0
Nightingale	7,595	0	0
Nutt & Co.	7,582	0	0
Hill, Keddell, & Waldram	7,570	0	0
Niblett & Co.	7,553	0	0
Colls & Sons	7,459	0	0
Higgs	7,443	0	0
Longmire & Burge	7,326	0	0
Hobson	7,215	0	0
Henshaw	6,983	0	0
Manley & Rogers	6,863	0	0
Myers & Sons	6,692	0	0
Cullum (accepted)	6,082	0	0

For house, &c., for Mr. J. Harrison, Dresden, near Longton. Messrs. R. Scrivener & Son, architects:—

Inskip	£1,060	0	0
Harvey & Co.	999	0	0
J. Harvey	995	0	0
Collis & Hudson (accepted)	840	0	0

For heating china manufactory by steam, for Mr. C. Ford, Hanley. Messrs. R. Scrivener & Son, architects:—

Boulton (accepted)	£272	10	0

For alterations and additions to house at Teddington Weir, for Mr. T. L. Wilson. Mr. H. T. Sugden, architect:—

Howard	£225	15	0
Perkins	225	0	0
Tod & Saunders	196	0	0
Hurst	185	0	0

For alterations and repairs to house, Brighton-terrace, Buckhurst-hill, for the London and Westminster Building Society. Messrs. Berriman & Son, architects:—

Purfett	£148	0	0
Perkins	113	0	0
Gibbs	109	0	0
Fisher	109	0	0

For the erection of an Athenæum, Camden-road. First contract, for the hall. Mr. F. R. Meeson, architect. Quantities by Mr. French:—

Carter	£2,400	0	0
Ingram	2,391	0	0
Barber & Groome	2,330	0	0
Webber	2,169	0	0
Heath	2,050	0	0
Newman & Mann	2,025	0	0
Niblett & Son	1,950	0	0
Goodman	1,919	0	0
Sharpington & Cole	1,897	0	0
Mann	1,893	0	0
Wright, Bros. & Goodchild	1,875	0	0
Waterson & Co.	1,865	0	0
Crockett	1,790	0	0
Scrivener & White	1,787	0	0
Till	1,775	0	0
Langmead & Way	1,730	0	0
Blease	1,693	0	0
Parsons & Telling	1,683	0	0
Gregory & Knight	1,677	0	0
Wood	1,675	0	0
Gough & Lawton	1,579	0	0

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We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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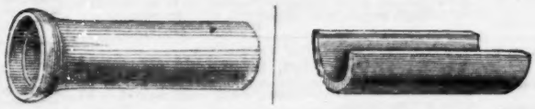

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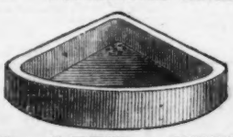

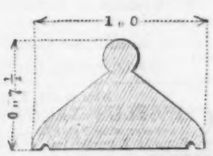

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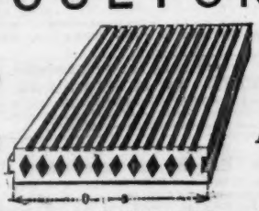

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